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OCT. '46

ASTOUNDING SCIENCE-FICTION

REG. U. S. PAT. OFF.

OCTOBER 1946

25 CENTS

THE CHRONICLER

BY A. E. VAN VOGT

Why so many MEN make Listerine a "*must*" every week.

They jolly well know that infectious dandruff is nothing to fool with . . . that it is prevalent and contagious . . . and that Listerine Antiseptic and massage is a wonderful precaution against it, and a tested treatment as well.

Why don't you get started yourself? Remember, those unsightly flakes and scales may be symptoms of infectious dandruff.

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And here's the important thing to remember: Listerine Antiseptic kills millions of the stubborn "bottle bacillus" (Pityrosporum ovale), the ugly little "bug" that many dermatologists say is a causative agent of infectious dandruff.

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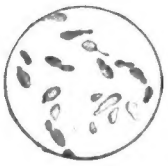

THE "BOTTLE BACILLUS" (P. OVALE)

This is the stubborn germ that so many dermatologists call a causative agent of infectious dandruff. Listerine Antiseptic kills it readily. Listerine Antiseptic is the same antiseptic that has been famous for over 60 years in the field of oral hygien-

Infectious Dandruff? . . LISTERINE ANTISEPTIC . . . QUIC

STREET & SMITH'S SCIENCE FICTION . . .

In the day of **ATOMIC** power . . .
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RADAR . . . simply isn't **ASTOUNDING.**

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It's speculation based on future
development of that fact
But not **ASTOUNDING.**

SO . . . the title on the cover of the magazine is changing.
Keep an eye on it!
Next month you'll see.

ASTOUNDING
SCIENCE FICTION

Reg. U. S. Pat. Off.

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THE LEAD CURTAIN

We've all heard, now, of the Iron Curtain of secrecy behind which the Soviet Government works.

With the passage of the McMahon Bill, the United States has erected a Lead Curtain. Lead is a strange metal; it stops nearly all types of atomic radiation. Also, lead is the most effective material known for stopping the *transmission* of sound. (The usual soft acoustic materials minimize reflections, not transmission.) Behind the Lead Curtain of atomic secrecy, the United States is doing something with the most terrible physical force in the known universe. We are suspicious and angry about the secrecy behind the Iron Curtain—but brothers, how would you feel if you knew that was a lead curtain!

The really hopeless part of the United States' lead curtain policy however, is this: We ourselves are on the wrong side.

The McMahon Bill was a good, fair bill for atomic control when it started its progress, but the amendments added to it since have more than undone any of the good work that went into it. The one amendment that completely tips the apple cart is the little item that provides the death penalty for treasonable disclosure of information.

That, I submit, is a delightful bit of meaningless noise, whose only semantic content is "Kill him! Kill him! He said something I don't understand!"

The joker, of course, is that the meaning of "treasonable" as applied to atomic information revelation can *only be determined by a court, and then only after the act.* If a sincere, honest, capable man determines, to the best of his judgment, that certain information should be released for general use—the courts may find that a "treasonable" revelation. He is liable to the death penalty.

The "atomic information" covers a marvelously broad scope. Suppose a medical researcher, with the aid of some of the isotopes produced at Clinton, perfects a real, complete cure for some type of cancer. Hu-uh—mustn't publish that! It's atomic information; you'll get shot.

Suppose an industrial firm sets about building an atomic pile for studying the commercial possibilities of atomic energy. The pile must be established inside a thick, concrete shield, and provisions must be made for the complex, all-automatic processing that will separate the accumulated fission products from used uranium slugs, so they may be refined and put back in the

pile. An industrial building contractor is given the job, and carries it through successfully.

Now, when it is discovered that one of the hod carriers on the job was an alien spy, should the contractor, or the head of the industrial firm be tried for treasonable disclosures?

The basic trouble is that any atomic control law which relies on the courts for interpretation of its meanings automatically becomes a lead-curtain law. Necessarily, in self-defense, any board of review operating under such a law must—can only—say "No!" Automatically, it becomes a Board for the Denial of All Information. The only way to determine whether a specific revelation of information is treasonable or not is to reveal it, have a court trial, and find out.

There should be a board empowered to pass on such information, a board not subject to the penalties for revelation of information. If you hire an expert on some subject, you either trust his judgment completely—or what in blazes did you hire him for?

The atomic control bill, as passed, will almost totally block industrial application of atomic energy. The United States, having just emerged from war, is still haunted by a military-mind psychology—and the military psychology is, and through all history has been, to hold on to everything you've got—particularly information! The primary indoctrination of the war years was "Don't talk!" The jittery fear of whispered secrets remains, even after a year of so-called peace.

The ingenious, and highly valuable engineering achievements represented by the pumps at Oak Ridge can't be discussed. Why not; can someone explain? It is known that they pumped highly corrosive, poisonous materials from a chamber at near-vacuum pressures to a chamber at one atmosphere pressure. They're simply pumps; surely there's nothing atomically mysterious about a gadget for pumping gases around?

Production-line mass spectrographs were used at Oak Ridge, as everyone who bothered to read the Smyth Report knows. Recently scientists transmuted gold into mercury by neutron bombardment—they did it with a cyclotron, not an atomic pile, so they could reveal the fact; the atomic pile was the obvious, easy, sensible way to do it, of course—in order to have single-isotope mercury for high-precision spectroscopy work. Separating a single mercury isotope in an Oak Ridge style mass spectrograph would be an obvious, easier way. But no; the operation of an Oak Ridge device, because it is at Oak Ridge, is atomic mumbo-jumbo. Transmutation by laboratory cyclotron, though, is freely released.

The lead curtain has fancy lacework borders, apparently. But just wait. They'll plug those holes, all right! Then we won't hear anything through the dull, gray wall.

THE EDITOR.

THE CHRONICLER

BY
A. E. VAN VOGT

There was a third eye in his skull—but it was more than a third path for vision. It was the key to a new, and terror-ridden world. A world of savages in a city, and philosophers in caves—and of a spaceship. First of two parts.

1.

BEFORE THE CORONER'S JURY

STATEMENT OF THOMAS BARRON

My name is Thomas Barron. For nine years I have been a partner in the brokerage firm of Slade & Barron. I never suspected Michael Slade was abnormal. He was a strong character, and I always thought him rather a superior individual.

I saw him a dozen times after the car accident that precipitated events, mostly in connection with my purchase of his share of the business. He gave me no inkling of anything wrong, and I have no idea what actually happened.

The crash was over, the car neatly turned on its top. Slade sprawled dizzily on his back, conscious that he had lost his glasses. Something warm trickled from his forehead into his left eye.

He wiped it away, and saw with a start that it was blood. He mustered a smile for his wife, who was sitting up. He said:

"Well, we survived. I don't know what happened. The steering gear broke, I think."

He stopped. Miriam was close enough for his nearsighted eyes, even without glasses, to see that she was gazing at him in mixed horror and alarm.

"Michael, your forehead—the soft spot! It's torn, bleeding, and —*Michael, it's an eye.*"

Slade felt blank. Almost automatically, he bent towards the rearview mirror, tilting it upwards to catch his head. The skin was torn raggedly starting about an inch from the hairline, and coming down about two inches.

A third eye was plainly visible.

The eyelid of it was closed by a surplus of sticky matter, but abruptly he grew aware that it was pulsing with a vague perception of light.

It began to hurt.

LOCAL MAN HAS THREE EYES

A car accident, which tore a layer of skin from the forehead of Michael Slade yesterday revealed that the young business executive has three eyes. Mr. Slade, when interviewed in the hospital, where he was taken by a passing motorist, seemed in good spirits, but could offer no reason for his possession of a third eye. "I always had that soft spot in my forehead," he said. "The eye itself seems to be a thoroughly useless appendage. I can't imagine Nature's purpose."

He admitted that it was very likely that he would have the skin grafted into place again. "People," he said, "go to sideshows to see freaks. Otherwise they don't like to look at them."

The discovery of a three-eyed man in this small city caused a buzz of interest in local scientific circles. At Technical High, Mr. Arthur Trainor, biology teacher, suggested that it was either a mutation, or else that a third eye was once common to human beings, and this is a retrogression. He felt, however, that the latter possibility was controverted by the fact that two eyes were normal throughout the entire animal world. There was, of course, the gland known as the pineal eye.

Dr. Joseph McIver, eye specialist, thought that it would be an interesting experiment to bring all three eyes back to perfect vision. He agreed that this would be difficult, since Mr. Slade's third eye has a bare perception of light, and also because the famous eye training systems now in existence have a hard enough time getting two imperfect eyes back to focus together and work perfectly.

"Nevertheless," Dr. McIver concluded, "the human brain is a strange and wonderful machine. When it is relaxed, everything balances. But when it is tensed for any reason, eye, ear, stomach and other organic troubles begin."

Mrs. Slade, whom our reporter tried to interview, could not be reached.

BEFORE THE CORONER'S JURY

STATEMENT OF MRS. M. SLADE

My name is Miriam Leona Crenshaw. I am the former Mrs. Michael Slade. I divorced Mr. Slade and have legal right to use my maiden name. I met Michael Slade about six years ago, and had no

suspicion that he was anything but a normal individual.

I saw my husband only twice after the car accident that revealed his abnormality. The first time it was to plead with him to change his mind about keeping all his three eyes visible. But he had been profoundly influenced by a comment in the press by a local eye specialist concerning the possibility that he might recover the vision of his three eyes. And he felt that publicity had then been so widespread that any attempt at deception was useless.

This determination was the sole reason for our separation, and it was to sign the separation papers that I saw him the second time.

I know nothing special of subsequent events. I did not even look at the body. Its crushed condition having been described to me, I refused to view it.

Slade sat palming and glancing at the Snellen charts, waiting for the eye specialist.

The sun was shining down on the chart, but he himself was in shadow, and comfortably ensconced in an easy-chair. Relaxation, that was the secret.

Only, after nearly three months of doing it on his own from books, his progress had been comparatively tiny.

Footsteps crunched on the walk. Slade looked up at the eye specialist curiously. Dr. McIver was a tall gray-haired man of fifty-five or so; that much was visible to Slade without glasses.

The doctor said: "Your man told me I would find you here."

He did not wait for a reply, but stood at ease, looking across the lawn at the three charts, respectively five, ten and twenty feet from the chair in which Slade sat.

"Well," he said, "I see you're familiar with the principles of eye training. I wish a billion more people would realize how satisfactory it is to have a light of ten thousand candlepower shining from the sky into their back yards. I think," he confided, "before I die I shall become a sun worshiper!"

Slade found himself warming to the man. He had been a little doubtful, when he had phoned Dr. McIver, about inviting even a specialist into his problem. But his doubts began to fade.

He explained his trouble. After nearly three months his third eye could see the ten-foot line at one foot, but with each additional foot that he drew back from the chart, its vision became worse out of all proportion to the extra distance. At three feet he could barely see the two hundred foot C.

"In other words," Dr. McIver said, "it's largely mental now. Your mind is suppressing images with which it is familiar, and you can be almost certain that it is suppressing them because it has been in the habit of doing so."

He turned, and began to unpack his bag. "Let's see," he said confidently, "if we can't persuade it to give in."

Slade could literally feel himself relaxing before the glowing positivities of this man. This was what he needed. For long now, tensions must have been building up inside him. Unconsciously he must be resenting his slow progress.

"A few questions first," said

Dr. McIver, straightening with a retinoscope in his hand: "Have you been reading fine print every day? Can you 'swing' the letters? Have you accustomed your eyes to direct sunlight? O.K.! Let's begin with the right eye without palming."

Slade was able to read at twenty feet the line that should have been visible at fifty. He was aware of McIver standing eight feet away studying his eye through the retinoscope. The eye specialist nodded finally.

"Vision of right eye 20/50. Astigmatism of two diopters." He added: "Do you practice looking at dominoes?"

Slade nodded. Up to a point he had made considerable progress with the muscle imbalance that caused the astigmatism which affected all three of his eyes.

"Left eye next," said Dr. McIver. And a little later: "Vision 20/70, astigmatism of 3 diopters."

"Center eye, vision 3/200, astigmatism of 11 diopters. Now palm."

Palming produced long flashes of 20/20 vision in his right and left eyes, and a bare instant of 5/70 vision in his center eye.

"I think," said Dr. McIver, "we shall start by trying for a better illusion of black. What you see may seem black to your imagination, but you're fooling yourself. Afterwards, we'll do some whipping and shifting, and bounce a few tennis balls."

He fumbled in his bag, and came up with a roll of black materials. Slade recognized a black fur piece, black wool, black cotton, a square of black cardboard, black silk, a piece of black metal, a hand-engraved ebony ornament, and a variety of familiar black items including a plastic fountain pen, a bow tie, and a small book with a black cover."

"Look them over," McIver said. "The mind cannot remember any shade of black more than a few seconds. Palm, and switch your imagination from one to the other of these items."

After half an hour, Slade had improved noticeably the vision of each eye. He could see the large C with his third eye at twenty feet, and the R and B below it were recognizable blurs. But perfect vision was still a long, long way off.

"Again, palm," said Dr. McIver. This time he went on talking softly as Slade closed his eyes. "Black is black is black. There is no black but black. Black, pure, unadulterated black is black black."

It was nonsense with a pattern of reason in it. Slade found himself smiling, as he visualized the black in the various articles that McIver had placed on his lap. Black, he thought, black, wherefore art thou, black?

As simply as that it came. Black as black as the black of a moonless, starless night, black as printer's ink, black as all the black that the mind of man ever conceived. The black.

He opened his center eye, and saw the ten line on the twenty-foot chart. He blinked, but it was still there as bright and black as the print itself. Startled, he opened the other two eyes. And still there was no blurring. With 20/10 vision in all three of his eyes he looked around his back yard.

He *saw!*

At first, the fence and the other residences and the charts and all the shrubbery remained as a part of the scene. It was like looking at two pictures, with one superimposed upon the other, like two images coming through two different sets of eyes. But images of different scenes.

The familiar one—his own back yard, and the hill to the right and the rooftops of his neighbors that made up his horizon—had the effect of blurring the other, stranger scene.

Gradually, however, its outlines pushed through. To his left, where the houses fell away into a large shallow depression, was an enormous expanse of marsh, thick with brilliant growth. To his right, where the hill had always hidden his view, were scores of caves with fires burning at their openings.

The smoke from the fires rose up in curling tongues of black and gray, and intensified the blur that already half hid the Morton and Gladwander mansions, which dominated the hill. They kept fading, fading. And now, Slade saw that the hill with the caves was somewhat higher and steeper than the hill with the houses. There was a wide ledge that ran along in front of the caves. And it was on this ledge that he suddenly noticed something else.

Human beings! They moved around, now bending over pots that hung above the fires, now adding wood to the fires, or disappearing into the caves, and then emerging again. There were not many, and most of them had long hair characteristic of women, or else they were small and childlike. Their primitive clothes—clearly visible even at this distance—made the reality of them unnatural.

Slade sat there. He had a remote impulse to get up, but it was too soon yet for reaction or even understanding. At last memory came that this was happening as a result of improvement in his vision; and the lightning thought followed: What in the name of sanity had happened?

It was too vague as yet, that tugging amazement, and besides there was still the scene of the cave dwellers becoming clearer and clearer to his vision. The houses and his own yard were just shimmering images, like fading mirages, like things dimly seen through an all-enveloping haze.

For the first time Slade realized that his eyes had been straining to hold those two scenes, but that the strain was lessening, as the second one took stronger and stronger hold of his attention.

The paralysis left him. Quite automatically, he stood up.

He noted, with enormous and

developing interest, that, where the marsh ended, a rolling meadow began, spotted here and there with bright splashes of gigantic flowering shrubs, and in the distance trees that looked amazingly tall.

Everything was as clear and bright as a summer sun could make it. A warm, glowing wilderness, almost untouched by man, spread before him. It was like a fairy land, and he stared and stared.

At last, with wondering delight, he turned to look at the other horizon—and the girl must have started the same instant around the tree that was there.

She was tall and very straight. She must have been intending to swim in the stream that babbled into the marsh a few yards away because, except for a rather ornamental silvery belt around her waist, she had no clothes on.

She had three eyes, and all three of them appraised Slade with amazement but without a shade of embarrassment. There was something else in her manner that was not so prepossessing, even a little repellent. It was the dominating look of a woman accustomed to think only of herself. He had time to realize that she was older than she looked.

The woman's eyes were narrowing. She spoke in a violin-toned contralto, meaningless words, but offensively sharp in tone.

She began to fade. The trees, the great marsh, the hill, partly visible to his left now, faded perceptibly. A house showed through her body, and, all around, the earth as he had known it for years took swift form.

Suddenly, there was the yard, and himself standing beside his chair. There was Dr. McIver, his back to Slade, peering around the corner of the house. The eye specialist turned, and his face lighted as he saw Slade.

"Where did you go?" he asked. "I turn my back, and you're off without a word."

Slade made no immediate reply. The pain in his eyes was like a fire.

It burned and burned.

BEFORE THE CORONER'S JURY

STATEMENT OF DR. McIVER

I had personal contact with Michael Slade over a period of about two and a half months. For an hour a day I assisted him with his eye training. It was a slow process, as, after apparently recovering the first day, he had an unusually sharp retrogression.

When I asked him about any particular effects he had observed during his brief spell of good vision he hesitated a long time, and then shook his head.

At the end of ten weeks his third eye had a normal vision of only 10/400. He decided then that he was going to take a holiday on his farm at Canonville, in the hope that his childhood surroundings would relax his mind, and so effect a cure.

I understand he later returned to his home, but I did not see him again until I was called to identify his smashed body in the morgue.

II.

The first day on the farm! It was distinctly cooler. A September breeze was blowing over the pasture, when Slade settled down with his eye charts. He glanced at the sun, already low in the west, for he had arrived late. And he

sighed. The day was almost gone.

It had to be today. That feeling was strong in him. This afternoon he was still convinced that it would be easy to recall the relaxed days of his childhood on the farm. By tomorrow, if he failed today, the tension of doubt would have set in.

Then, too, there had been the anxious feeling way in the back of his mind about the cave dwellers. He was just a little reluctant to appear within a stone's throw of a primitive tribe. Here, on this prairie, it was different. It was very unlikely that any inhabitants of that obviously sparsely settled world would be anywhere in the vicinity.

What the mind wants to see, Slade thought, *it will see if it is there to see.* He was creating conditions where his mind would again want to see.

He palmed, and then looked at the chart with his center eye. He could see the big C at twenty feet; the R and B below it were a blur, and the T F P a blotch of gray. As an improvement it was practically worthless.

He palmed again. The eyeball, according to the eye training theorists, was a round organ, which elongated for near vision, and flattened for distance vision. Some of the practitioners were willing to concede the possibility that the ciliary muscles did, in addition, change to some extent the shape of the lens.

But whatever the explanation behind the reality that the system worked, if the muscles pulled disproportionately, vision was poor. The fact that those muscles were controlled by the imagination, a difficult part of the mind to train, made the problem all the more intricate for people who had long worn glasses or had eye trouble.

The solution, Slade thought, *is in me. I have got rid of all the astigmatism in my right or left eye, yet my center eye persists in being astigmatic, sometimes to the point of blindness.*

It was of the mind, his trouble. His eye had proved that it was able to function normally.

About an hour before sundown, his brain was still refusing to work with the third eye.

Perhaps, Slade thought, *if I went to the various spots, of which I have particularly vivid childhood memories, I'd be able to recapture the mood and—*

First, the creek beside which he had hidden so often in the brush, and watched the cars go by to their remote and wonderful destinations.

The grass had grown deep where he had once worn it down with his small body. He knelt, and the scent was a tang in his nostrils. He pressed his face to the cool, green softness of it, and he lay quiet, conscious of his weariness and of the sustained effort he had made during the past months.

Am I a fool? he wondered. *Did I turn my wife against me, break off with my friends, all in order to follow a will-o'-the-wisp?*

And had he really seen that other world, or was that some fantastic illusion which his mind had experienced during a profound organic readjustment?

His mood of depression intensified. The sun went down, and twilight was yielding to darkness when he finally started back along the bank of the creek towards the farmhouse.

In the darkness he couldn't find the path, and so he struck across the pasture, stumbling once in a while through thicker patches of grass. He could see the light of the end window of the farmhouse, but it seemed farther away than he remembered. The first alarm came with that realization, but it wasn't until five minutes later that a far more telling fear struck into him. The fence! He should have come to the fence long ago.

The light seemed to be only a few hundred feet from where he stopped short.

Slade sank slowly down onto the grass. He swallowed hard, and then he thought: *This is ridiculous. I'm imagining things.*

But there was an empty sensation in the pit of his stomach, as he strove to penetrate the intense darkness all around him. There was no moon, and clouds must have been heavy overhead, for not a single star showed. The light in the near distance glowed with a hazy but bright steadiness. It failed, however, to illuminate the building from which it came.

Slade blinked at it with a gathering fascination, his tenseness draining before the consciousness that it would probably be easy to get back to Earth. After all, he had *thought* himself here. He should be able to get back without too much trouble.

He climbed to his feet, and began to walk forward. As the light drew nearer, it seemed to him that it was coming from inside a doorway. Vaguely, he could make out that the doorway was inset under a curving sweep of metal, that bulged far out. The metal gleamed dully, and then merged with the general blackness without leaving a hint of the shape of the whole structure.

Slade hesitated about a hundred feet from the entrance. He was even more fascinated than he had been, but his desire to investigate was dwindling. Not now, in this dark night of a strange plane of existence. Wait till morning. And yet he had the uneasy conviction that before dawn the tensions would have reasserted in his mind.

One knock at the door, he thought, *one look inside. And then off into the darkness.* The door was metal, and so solid that his knuckles made only the vaguest sound. He had some silver coins in his pocket, and they tinged with a sharp sound as he used them. Instantly, he stepped back, and waited.

The silence grew tremendous, like a pall pushing at him. Dark and silent night in a primtive land inhabited by cavemen and—

And what? This was no cave-

man's residence. Was it possible he had come to a plane of Earth entirely separate from that of the nude girl he had seen?

He retreated into the shadows away from the light. He stumbled, barking his shins. On one knee, he felt the object over which he had nearly fallen. Metal. That brought a thrill of real interest. Cautiously, he pressed the button of his flashlight, but it wouldn't light. Slade cursed under his breath, and tugged at the metal thing in the ground. That was the trouble. It was in the ground. And held hard.

It seemed to be a wheel attached to a boxing of some kind. He was still fumbling over it, tugging tentatively, when it began to rain. That sent him to the nearest brush for cover. But the rain grew heavier, until finally the bush poured water on him. Slade accepted his fate, and headed back for the doorway. He tried the latch, and pushed. The door opened immediately.

The interior was brightly lighted, a long, high, wide corridor of dully shining metal. About a hundred feet away, the massive hallway ended in a cross corridor. There were three doorways on each side of the corridor.

He tried the doors one after another. The first one opened into a long, narrow room that was all shiny blue mirror. At least, it looked like a mirror. Then he grew aware that stars were shining in its depth.

Slade closed the door hastily. It wasn't that he felt fear. But his mind had hesitated, unable to interpret what it was seeing. Its hold on this world was far too precarious for him to subject it to incomprehensible strangeness.

He moved across the hall to the first door on his left. It opened onto a long, narrow room half filled with case on case of goods. Some of them were open, their contents spilled out on the floor. Instruments glittered up at him, a quantity array of miscellaneous gadgets of all sizes. Some of the boxes were haphazardly pulled aside, as if a searcher had been looking for some specific item.

Slade closed that door too, puzzled but without any threatening strain this time. A storeroom was a recognizable thing, and his mind accepted it without there being any necessity for him to identify what was in the boxes.

The two middle doors revealed identical interiors. Massive machines that towered three quarters of the way to the ceiling. In spite of their size Slade recognized them for what they were. For more than a year American papers and magazines had shown pictures of the atomic engine developed at the University of Chicago for rocket ships. The design was slightly different, but the general tenor was unmistakable.

Slade closed each door in turn, hastily. And stood in the hallway, dissatisfied with his situation. A spaceship settled on a lonely moor in an alien plane of existence, brilliantly lighted inside, and a soli-

tary light outside like a beacon in the night beckoning to wanderers like himself, offering surcease from the darkness—was that the reality?

Slade doubted it, and a grisly feeling came that he had willed himself into a nightmare, and that any instant he would wake up, perspiring, in his bed.

But the instants passed, and there was no waking. Gradually, his mind accepted the silence, the brief panic faded, and he tried the fifth door.

It opened into darkness. Slade stepped back hastily. His eyes grew accustomed to the shadows, and so after scant seconds he saw the shape. It was pressed against the darkest wall, and it watched him alertly from three eyes that gleamed brightly in the vaguely reflected light. One swift look Slade had, and then his mind refused the vision.

Instantly, the ship, the light, vanished. He fell about three feet to a grassy embankment. Half a mile away was a yellow glowing light. It turned out to be his own farmhouse.

He was back on Earth.

Slade remained on the farm, undecided. The vision of all three of his eyes had deteriorated this time, and besides he was a badly shaken man. It couldn't have been the same woman, he told himself. Standing there in the shadows of a corridor of an old, seemingly deserted spaceship, the same young woman—watching him.

And yet, the resemblance to the nude cave girl had been so apparent to his brain that he had instantly been under an abnormal strain. His mind proved that it recognized her by the speed with which it *rejected* the logic of her presence.

The question was, should he continue his exercises? For a whole month he walked the reaches of the farm, unable to make up his mind. And the main reason for his indecision was his realization that his return to the two-eyed world had not been absolutely necessary.

Normal vision was a product of many balancing factors, not only mental but physical. Muscles weakened by glasses or by disuse lacked the endurance to resist the shudderingly swift impulses of the mind. Properly strengthened, they would withstand far greater shocks than he had experienced.

A demonic woman, he thought, *standing in the shadows of a shadow ship in a shadow land.* He was no longer sure he wanted to commit himself to that other plane of existence—to a woman who was aware of him, and who was trying to lure him.

After a month, the first snowfall whitened the foothills. Still undecided, Slade returned to the city.

STATEMENT OF PROFESSOR GRAY

My name is Ernest Gray, and I am a professor of languages. Some time ago—I cannot remember the exact date—I received a visit from Michael Slade. It seems that he had been away on his farm, and that, on returning to his city home, he learned that, in his absence, a three-eyed woman had visited his home.

From the account Mr. Slade gave me, I understand that his manservant admitted the woman to the house—she seems to have been a very assured and dominating individual—and permitted her to remain five days as a guest. At the end of that time, the day before Mr. Slade's return, she departed leaving behind her nearly a score of phonograph records and a letter. Mr. Slade showed me the letter. Although it is to be shown to the jury as a separate exhibit, I am herewith including it in my statement to clarify my own account. The letter read as follows:

Dear Mr. Slade:

I want you to use the phonograph records to learn the language of Naze. The key record will dissolve in about two weeks after it is first played, but during that time it should have helped you to gain complete mastery of Nazia.

The situation on Naze is very simple, as you will discover, but it is also very dangerous. Here is what you must do. As soon as you have learned the language, drive to the plateau two miles west of the city of Smailes, and park your car beside an abandoned granary several hundred yards from the road at midnight of any night.

In all your ventures on Naze, beware of Geean and the hunters of the city.

Leear.

By the time Mr. Slade brought the records to me, the key record had dissolved, but after listening to those that remained I am able to say without quali-

fication that the language is a fraud, possibly an artificial creation of the three-eyed people for secret intercommunication.

I am assuming, now that a three-eyed woman has turned up, that there is more than one three-eyed freak in the world. My first reaction was that the name, Naze, might have some connection to the Nazi party, but the pronunciation of the word as given in the records, rhymes with faze and daze.

It is unfortunate that the key record was destroyed. Without such a key there can be no translation of a language which, in the ultimate issue, is nothing but a product of the imagination of three-eyed neurotics.

I am told that Mr. Slade's body was found near the city of Smailes, about a mile from the granary outhouse referred to in the letter of the woman Leear. But I know nothing about that, and did not myself see the body.

III.

At first Slade sat in the car. But as midnight drew near, he climbed out and examined the granary with the probing beam of his flashlight. The bare, unpainted interior was as empty as it had been in the afternoon when had driven out for an exploratory look.

The stubble field stretched off into darkness beyond the farthest ray of his flash. A quarter moon rode the eastern sky, and the stars shone with a pale radiance, but the resulting light failed to make his surroundings visible.

Slade glanced at his watch. And though he had known the hour was near, he felt a shock. 11:55. In five minutes, he thought shakily, *she* would come.

Not for the first time, he regretted his presence. Was he a fool, he wondered, to come here—to risk himself on an abandoned farm, where his loudest shouts for help would merely echo mockingly from the near hills? He had a gun of course, but he knew that he would hesitate to use it.

He shook himself. She had been cunning, had the woman Leear, not naming a date for him to come. *Any* midnight, she had said. She must have known that that would work and work on the mind of the only three-eyed man of Earth. If she had named a time as well as a place, he could have made up his mind against it.

The indefiniteness nullified his resistance. Each day that passed brought the same problem: Would he go tonight? Or wouldn't he? Each day, the pro and con, with all its emotional overtones, racked his mind and body. And in the end he decided that she wouldn't have taught him the language of Naze in order to harm him on the night that he came to keep their rendezvous.

She was interested in him. What she wanted was something else again, but being what he was, a three-eyed man, he could not but be interested in her. If talking to her tonight would bring him information, then the risk was more than justified.

Here he was, for better or worse.

Slade put away his flash, and glanced at the illuminated dials of his watch. Once again, but even more tinglingly, the shock ran down his spine. It was exactly midnight.

The silence was intense. Not a sound penetrated the night. He had turned off the headlights of his car. Now, abruptly, it seemed to him that he had made a mistake. The lights should be on.

He started towards the car, and then stopped. What was the matter with him? This was no time to desert the shelter of the granary. He backed slowly until his body touched the wall. He stood there fingering his gun. He waited.

The sound that came to him there was almost not a sound at all. The air, which had been quiet, was suddenly gently agitated. But the breeze was not normal. It came from above.

From above! With a jerk, Slade looked up. But he saw nothing. Not a movement was visible against the dark, dark-blue of the sky. He felt a thrill akin to fire, a sense of the unknown stronger than anything he had ever experienced, and then—

"The important thing, Michael Slade," said the resonant, familiar voice of Leear from the air almost directly above him, "is for you to stay alive during the next twenty-four hours while you are in the city of Naze. Be cautious, sensible, and make no unnecessary admissions about what you do or do not know. Good luck."

There was a dazzling flash of light from about a dozen feet above. Slade blinked, and snatched his gun. Then he stood tensed, and looked around wildly.

The granary was gone, and his car, and the stubble field. He was on a city street. Buildings loomed darkly all around him, spirelike shapes that reared up towards a haze of violet light which half-hid the night sky beyond. The light spread like a great curving dome from an enormously high spire in the distance.

Slade saw those details in one flashing glance. Even as he looked, understanding came of what had happened. He had been transported to the city of Naze

At first the street seemed deserted, the silence utter. But then, swiftly, his senses began to adjust. He heard a vague sound, as if somebody had whispered to somebody else. Far along the street, a shadowed figure raced across the road, and vanished into the darkness beside a spire.

It struck Slade with a pang that his position here in the center of the street put him at a disadvantage. He began to edge carefully towards the sidewalk to the right. The roadbed was uneven, and twice he stumbled and almost fell. The greater darkness under a tree enveloped him, and he had barely reached it when there was a human screech about fifty yards away.

The sound was jarring. With a spasmodic movement, Slade flung himself onto the ground, simultaneously raising his gun. He lay very still. He waited.

It took a moment for his brain to gather together. And several seconds passed before he could locate the direction of what was

now a noisy struggle. Cries and groans and muffled shouts came from the darkness. They ended abruptly, and there followed a curious silence. It was as if the assailants had been worn out by their struggle and were now resting. Or—what was more likely—they were silently and greedily engaged in searching their victim.

Slade's brain had time to catch up with his reflexes. His first thought had in it a blank, amazed quality. What had he run into? He lay quiet, clutching his automatic tightly, and after a moment the second thought came: So this was the city of Naze.

Briefly, then, he felt overwhelmed. He thought, *How did she do it? How did she transfer me here?* There had been, he remembered, a flash of light. And instantly he was in Naze.

She must have used the same mechanical means as she had employed to transfer herself to the Earth plane. An instrument the light of which somehow affected the visual center behind each eye. There seemed no other logical explanation, and that logic, with the spaceship as an additional example, pointed to a highly developed science, that included a thorough understanding of the human nervous system.

The question was, would the effect of the light be permanent? Or would it wear off?

His thought was interrupted by a cry of rage. "Give us our share of the blood, you dirty—"

The words were shouted in the language of Naze, and Slade understood them all except the last one. It was that instantaneous, easy comprehension that thrilled him for a moment. Then the meaning penetrated also. Blood. Share of the blood.

Lying there, it seemed to Slade that he must have misunderstood. His doubt ended as another, even more furious cry came, this time from a second voice:

"The thief has a double-sized container. He got twice as much blood as the rest of us."

A third voice, obviously that of the accused, shouted, "It's a lie." The man must have recognized that his denial would not be accepted. Footsteps came racing along the street. A tall man, breathing hard, flung himself past Slade. Rushing after him, and strung out behind him, came four other men, all smaller than the first.

They charged past where Slade was lying, vague, manlike shapes that quickly vanished into the night. For nearly a minute he could hear the noise their feet made, and once there was a loud curse.

The sound faded as had the sight. There was silence. Slade did not move. He was realizing the full import of what he had seen and heard. A dead man, drained of blood, must be lying on the street a few hundred feet away. Realizing—Naze at night was a city of vampires.

A minute, two minutes, dragged by. The thought came to Slade,

But what am I supposed to do? What am I here for?

He recalled what the woman Leear had told him just before she flashed the light at him. "The important thing, Michael Slade, is for you to remain alive during the next twenty-four hours while you are in the city of Naze."

Twenty-four hours! Slade felt a chill. Was he expected to remain in Naze for an entire day and night with no other instructions but that he remain alive? No purpose, no place to go, nothing but —this!

If only there were street lights. But he could see none in any direction. Not that it was pitch dark. An alien shiningness glowed at him, different from the night-lit cities of Earth. The sky glowed palely where the violet haze trailed down from the central tower, and lights flickered from the slitted windows of a dozen spires that he could see.

It was definitely not pitch dark, and in a way that might be to his advantage. It seemed clear that he couldn't just continue to lie where he was. And darkness would provide protection for an uneasy explorer.

He climbed to his feet, and he was about to step from under the tree when a woman called softly to him from across the street:

"Mr. Slade."

Slade froze. Then he half turned. And then he recognized that he had been addressed by name. His relief left him weak.

"Here!" he whispered loudly. "Here!"

The woman came across the street. "I'm sorry I'm late," she whispered breathlessly, "but there are so many blood seekers abroad. Follow me." Her three eyes gleamed at him. Then she turned, and headed rapidly up the street. And it was not until Slade was swinging along behind her that the startling realization came to him that this woman was not Leear.

Swiftly, he and his guide headed deeper into the city.

They climbed one of the darkest stairways Slade had ever seen, then paused before a door. The girl knocked, a measured knock. Three times slow, two fast, and then after a short interval, one.

The pause was long. While they waited, the girl said:

"Mr. Slade, we all want to thank you for coming—for the risks you are taking. We will do our best to familiarize you with Naze. Let us hope that this time the ship will be able to destroy the city."

"Uh!" said Slade.

The exclamation could have been a giveaway, but at the last instant he had an awareness of the danger of his surprise. He choked the sound down to a contorted whisper.

There was the click of a lock. The door creaked open. Light poured out into the hallway. It revealed a heavily built woman slowly making her way to a chair.

Inside, Slade examined his

surroundings. The room was both long and wide. Fot its size, it was scantily furnished. There were three settees and two lounges, end tables, tables, chairs and rugs. The drapes could once have belonged to his divorced wife, Miriam.

Once? A very long time ago, Slade decided after a second glance. They looked as if they had originally cost a great deal. They were so shabby now that they actually seemed out of place.

Slade let the room recede into the background of his tired mind. He walked over, and sat down in a chair, facing the older woman; but it was the younger woman he looked at.

She had paused a few feet away, and was now standing smiling at him. She was a lean, olive-complexioned girl with a proud smile.

Slade said: "Thank you for the risks *you* took."

The girl shook her head with an easy smile. "You'll be wanting to go to bed. But first I want you to meet Caldra, the Planner. Caldra, this is Slade of the ship."

There it was, definite, stated. *Of* the ship. He, Michael Slade! Leear was certainly taking a great deal for granted.

The older woman was looking at him with strange, slow eyes. The impression of slowness was so distinct that Slade looked at her sharply for the first time. Her eyes were the color of lead, her face colorless, pasty, unnatural. Lusterless, almost lifeless, she stared at him. And said in a dead slow voice:

"Mr. Slade, it is a pleasure."

It was not a pleasure to Slade. He had to strain to keep the repelled look off his face. Once, perhaps twice, before in his life, people had affected him like this, but neither of the other two had matched this creature for the unpleasant sensation they made him feel.

Slow thyroid, he analyzed. The identification made her presence more palatable to his soul. It freed his mind. Memory came of what the girl had called the other. His brain paused. Caldra, the Planner.

He relaxed slowly, and made a conscious concession. She might be very good at that. Slow brains could be extremely thorough.

His interest began to sink. The strain of his experiences weighed suddenly on him. In his teens and early twenties, he had been a night hound, a haunter of cocktail bars and clubs. At thirty he had started to go to bed at ten o'clock, much to Miriam's disgust. Midnight usually found him yawning and sleepy. And here it was—he glanced at his watch—five minutes to one. He glanced at the girl. He said:

"I can use that bed."

As the girl led him towards a corridor door, the older woman mumbled:

"Things are shaping up. Soon, the hour of decision will be upon us." Just as Slade went out of the door, she said something else

with the faintest suggestion of a laugh. It sounded like, "Don't get too near him, Amor. I felt it, too."

The words seemed meaningless. But he was surprised, as the girl opened the bedroom door, to notice that the color in her cheeks was high. But all she said was:

"You're reasonably safe here. There is a very large group of us who believe in the destruction of Naze, and this is our part of the city."

In spite of his weariness, a gathering excitement kept Slade awake. He had been too tense to realize his situation. The thoughts that had come were simply the first unfoldings of his mind. But now, in bed, slowly relaxing, the tremendousness of what was happening penetrated.

He was in Naze. Outside the walls of this building was a fantastic city of another plane of existence. And tomorrow he would see that city in all its strangeness. Tomorrow!

He slept.

IV.

Naze seen under a brilliant morning sun was a jarring spectacle. Slade walked beside Amor along a wide street. Shabby city, he thought, distressed. And old, oh, old!

He had realized the night before that Naze was ancient and decadent. But he hadn't grasped the extent of the disaster that had befallen the city. The buildings that he saw looked older than all his imaginings. Five hundred, eight hundred, perhaps even a thousand years had dragged by since those buildings were built.

For hundreds of thousands of days and nights, the city had rotted under its sun. Its streets and sidewalks had borne the load of daily living. The strangest building materials could not but be worn out after such a lapse of time. And they were.

The sidewalks were almost uniformly rubble, with only here and there a patch of smooth hardness

to show what the original had been like. The streets were a little better, but they, too, were largely dust packed down by the pressures that had been put on them.

Not a single vehicle was visible anywhere, only people, people and more people. Evidently, all wheel machines had long ago been worn out.

What had happened? What *could* have happened? There was, of course, the war between the city and the ship—but why? He half-turned to the girl to ask the question, then abruptly remembered that it would be unwise to show ignorance. Leear had warned him to make no admissions.

The city that surrounded him, so obvious a relic of an ancient culture, drained the fever of that fire out of him. Never anywhere had he seen so many people on the streets of a metropolis. With this difference. These people weren't going anywhere. Men and women sat on the curbs, on the sidewalks and on the roads. They seemed unmindful of individuals who brushed past them. They sat, staring vaguely into nothingness. The mindlessness of it was awful to see.

A beggar fell into step beside Slade. He held up a metal cup:

"A few drops of your blood, mister," he whined. "I'll slit your throat if you don't give it to me."

Amor's whip lashed out, and struck the ghoulish thing in the face. The blow raised a welt on the man's face. Blood trickled from the welt.

"Drink your own blood!" the girl snapped.

Her color was high, Slade noticed, her face twisted with almost unnatural hatred.

"Those beasts," she said in a low, intense voice, "lurk in alleyways at night in gangs, and attack anybody who comes along. But, of course," she broke off, "you know all about that."

Slade made no comment. It was true that he knew of the night gangs, but what he didn't know would fill a book.

The continuing reality tore his mind from that very personal problem. The streets swarmed with people *who had nothing to do.* And again, and again and again, fingers plucked at Slade's sleeve, and avid voices whimpered:

"Your blood is strong, mister. You can spare a little, or else—"

Often and often, it was a woman's face that leered up at him.

Slade was silent. He was so appalled he could have spoken only with difficulty. He looked down side street after street, boiling with lecherous beings; and he saw for the first time in his life what utter depravity was possible to the human animal.

This city must not continue to exist. It was clear now why Leear had lured him into the city. She wanted him to see, and she must believe the actuality would end any doubts in his mind. Doubts, for instance, about the reasons for the immeasurably horrible conditions —unquestionably due to the war

between the ship and the city. Understanding the origin of a plague was a side issue.

The plague itself must be wiped out.

He had no doubts; so great was his horror. He felt sick with an absolute dismay. This, he thought, going on day after day, year after year, through centuries. It mustn't. The girl was speaking:

"For a while we thought if we could get the chemicalized cups away from them, we could end the blood craze. But—"

She stopped; she shrugged, finished: "Of course you know all about that. Except in rare cases, depravity only sinks to new depths; it does not rise."

There was nothing to say to that. It was easy to see that his NOT knowing "all about that" was going to be a handicap to his understanding of the details of hell. He didn't really need the details though; the overall hell was enough.

End it! Destroy it! Help the ship if he could, help these fifth columnists. But destroy Naze.

He grew calmer. He analyzed her words. Chemicalized cups! Then it wasn't the blood itself, but some chemical in the metal of the cup, that made it so intoxicatingly attractive.

Removal of the cup apparently had channeled the craving into something worse. What? Well, he was supposed to know.

Slade smiled wearily. "Let's go back," he said. "I've had enough for today."

The early part of the lunch was eaten in silence. Slade ate, thinking about the city, the ship and the cavemen, and of his own part in the affair. In a way he now knew the essentials of the situation. He had seen the ship, and he was seeing the city.

The question was, just what was he supposed to do? He realized abruptly that Caldra, the slow, was about to speak.

The woman was laying down her fork. That movement alone required many seconds. Then she lifted her head. It seemed to Slade that it took her eyes an unnaturally long time to focus upon him.

The next step was even more prolonged. She opened her mouth, sat considering her first sentence, and finally began to articulate the syllables. Over a period that seemed longer than it was, she said:

"Tonight, we raid Geean's central palace. Our forces can guarantee to get you to the fortieth level as agreed. The apparatus Leear asked for is already there, ready to ease you out of the window, so that you can focus your dissembler onto the controls of the barrier. You no doubt saw for yourself when you were out this morning that they are located at about the ninetieth level.

"We assume, of course, that the ship will rush in the moment the barrier is down."

Long before her measured words reached their end, Slade had grasped their import. He sat

motionless, eyes half closed, startled Tonight. But that was ridiculous. He couldn't be expected to rush into an attack as blindly as that.

His opinion of Lecar went down a million miles. What was a dissembler anyway? Surely, he wasn't expected to learn how to operate an intricate mechanism during the heat of a battle. His consternation reached a peak as Caldra fell silent, and looked at him expectantly. Amor, too, he saw, was watching him with eager anticipation.

Slade parted his lips, and then closed them again, as another, greater realization struck him. The realization that he had been given an immense amount of information. It was all by implication, but the import was unmistakable.

The haze of light he had seen the night before, radiating from the skyscraper central tower—and which he recalled suddenly had been vaguely visible during his morning walk as a faint mist—that was the barrier. What kind of a barrier? Apparently, a barrier strong enough to keep the spaceship at bay. A barrier of energies potent beyond anything on Earth.

But that meant the city was under siege, and—judging from the decay—had been for hundreds of years.

Slade's mind poised. "This," he told himself, "is ridiculous. How would they live? Where would they get their food? They can't possibly be living on each other's blood."

He stared down at his plate, but there was very little left. The remnant looked like a vegetable, though it was covered by a sauce or gravy that hid the details. He looked up, a question about the food quivering in his throat—and realized that this was no time for such things. If he was going to prevent a major disaster, he had better say something, and fast. Before he could speak, Amor said:

"One bold surprise attack and"—she smiled with a savage excitement—"finish!"

For a moment, the play of emotions across her face held Slade's attention. She was quite a deadly creature herself, this tall girl who carried a whip for the vampires of Naze. It was the old story of environment of course. The mind shaped by its physical climate, and in turn shaping the body and the expression of the face, and setting fast the capabilities of the senses.

For the first time it struck him that, if he committed himself to this plane of Earth, here was a sample of the kind of girl he would eventually marry. He looked at her with interest, prepared to pursue the thought further. And then, once more he realized that his mind was striving to escape from its only immediate problem, the attack. Tonight! He said:

"I'm sorry to have to tell you that the ship will not be here tonight."

Amor was on her feet, her eyes widening. "But all our plans!" she gasped.

She seemed overcome. She sat down. Beside her, Caldra emerged

from her stupor, and showed that Slade's words had finally penetrated.

"No ship!"

Slade said, "The ship was to signal me this morning." He felt as if he were sweating, but it was a mental sensation, not a physical one. He went on, "There was no signal."

It was not bad, he realized, for ad lib. He relaxed, in spite of not having solved his basic problem. He watched Amor head for the door. She paused on the threshold.

"I'll have to call off the attack."

The door banged behind her, leaving, after a moment, silence.

Amor having failed to turn up, Caldra and Slade ate dinner shortly before dark.

It was late when Amor came in. She slumped into her chair, and began to pick absently at the food that Caldra set before her. Several times Slade caught her looking at him from under her lashes with speculation. And with something else. He couldn't quite decide what.

Slade decided not to let that disturb him. He walked over to the great window of the living room. He was aware of Amor joining him after a while, but she said nothing; and so he, too, held his peace. He looked out at Naze.

Shadowed Naze, night enveloped. Seen from the spire window, the city drifted quietly into darkness. It seemed almost to glide into the shadows that crept in from the east.

Slade gazed and gazed. At last except for the flickering lights and the almost invisible barrier, the darkness was complete.

Realizations came: His was surely the strangest adventure in the history of the human nervous system. Born in the foothills of western United States, brought up on a farm, quickly successful as a broker in a small western city. And now here! Here in this dark, doomed city of a planet the civilization of which was in desperate straits.

And yet it was not an alien planet; simply another plane revealed to his brain and body because he had three eyes instead of two.

The thrill of excitement that came was connected with his companion. She stood beside him, a woman of that world, young and strong, perhaps still unspoken for by any man.

It was possible. He was sure of that. The marriage state was almost meaningless under present conditions.

It was some time since he had given serious thought to the subject of women. Now, he was fairly easy prey. During the afternoon he had thought of Amor in a very possessive fashion, and his previous realization—that IF he stayed, he would have to marry a girl of this world—had sharpened.

It was possible that there would be other women on this plane of existence more attractive than she was, but they were far away.

Slade said: "Amor."

No answer.

"Amor, what are you planning to do afterwards?"

The girl stirred. "I shall live

in a cave, of course. That is what we must all do."

Slade hesitated, torn from his line of approach by the implications of her words—*Must* all do! Why? It had not struck him before that Amor and her group accepted the idea of a primitive existence.

He remembered that in a kind of a way, he was trying to make a girl.

"Amor."

"Slade."

She seemed not to have heard him, for her tone was not an answer, and showed no awareness that he had spoken.

Slade said, "What is it?"

"This will sound terrible to you, but I was once a blood drinker."

It seemed a futile confession. It brought no picture at first; the words themselves made him uneasy, however.

"And so was Caldra. And everybody. I don't think I'm exaggerating. There's never been anything like it."

A picture began to come. And thoughts. Slade licked his suddenly dry lips, repelled.

And still he had no idea what she was getting at.

"It was easier for me to break off," the girl said, "and to stay off—until today . . . last night. Slade," her voice was tiny, "you have strong blood. I felt it all day."

Abruptly, he knew where she was heading. He thought of the men and women she had lashed with her whip that morning. In a twisted fashion, those blows had been aimed at her own craving.

"You can't imagine," Amor was saying, "what a shock it was to Caldra and me when you said the attack was not tonight. It meant you would be around at least another day. Slade, that was terribly unfair. Leear knew our situation only too well."

The repulsion was greater. It seemed to Slade that in another moment he would be sick. He said in a low voice:

"You want some of my blood."

"Just a little." Her tone had the faintest whine in it. Enough to make vivid a picture of her begging on the streets. Slade felt mentally nauseated.

The thought came that he had no business making any remarks. But he was emotionally past that stage of common sense. This was the girl he had tentatively intended to offer marriage. He said harshly: "And you were the one who used a whip on the others this morning."

In the darkness of the room, he heard the sharp intake of her breath. There was a long silence. Then she turned, and her body was a slim, shadowed shape that disappeared into a corridor towards her bedroom.

And so the night that was to be long began.

V.

After several hours, Slade still couldn't sleep. He had been unfair to somebody he liked; and it was disturbing.

She had rescued him from almost

death, restored his health; and, surely, surely, he could spare her a little of his blood. Out of all the people in this fantastic city, she and her group had fought hardest against the craving that had destroyed the soul of Naze.

It must have been a fight to make the very gods take pity. But he had had none. He, supermoralist Michael Slade, the perfect man, had cast stones and created pain.

Actually, the true explanation was worse than that, rooted as it was in his own physical desires. And, besides, it was possible that his blood did *feel* stronger to people who were aware of such things.

In the morning, he would give Amor AND Caldra a half cup of blood. And then, somehow, he must get out of this city, back to Earth if possible, but out in some way. It was already after midnight, and clear, therefore, that the end of the twenty-four hour period, which Leear had mentioned, would not automatically return him to the vicinity of his car, near the city of Smailes.

Why, if it meant nothing, had she mentioned a time limit? He dozed, still thinking about that. And wakened to the realization that someone was in the room.

He lay rigid, striving to penetrate the darkness. The fear that pressed on him was the ancient fear of a man in a hostile land being stalked in the blackness. His straining eyes caught a movement against the silhouetting wall, a shadowy figure.

A woman. Amor. The identification brought a measure of pity.

Poor girl! What deadly hunger that desire for blood was. In a blurred fashion, he had had in the back of his mind an intention of using a cup to taste his own blood. But her coming under such desperate circumstances ended that intention for the time being. He was only a normal human being. He couldn't afford to be caught in the toils of so potent a drug.

He made an effort to sit up. And couldn't. He was held down by straps.

He lay back, the first annoyance sharpening his temper. It was all very well to feel sorry for her, but this was a pretty raw stunt she was pulling.

He parted his lips to say something scathing. He didn't say it. Memory came that this girl was in a bad way. Let her have her blood.

He wouldn't say a word. In the morning he would pretend that nothing had happened. The determination gave him a temporary satisfaction.

In the darkness, the vague movement continued. The girl seemed to be in no hurry. Just as Slade's impatience reached the vanishing point, a thin needle of light pointed down at his left arm. Almost simultaneously a hand came into view. It held a syringe, which it inserted deftly into the largest visible vein. Slade watched, interested, as the blood drew up darkly into the transparent body of the instrument.

The seconds slid by, and still the avid needle strained at him. Slade thought of the eeriness of what was happening, an Earthman in a strange world being bled by a likable vampire girl in the secret dead of night.

The picture faded with the passing seconds, too many seconds. Slade said gently:

"Don't you think that's enough?"

For several moments after his words broke the silence, the syringe held steady; and there was no sound. At last, the hand and the syringe jerked slightly in surprise.

It was the time gap between his speech and her reaction that brought to Slade his first understanding of the truth. His gaze fixed for the first time on the hand holding the instrument. It was hard to see in the reflections from that narrow band of light. But seeable it was. And recognizable.

It was a woman's hand. Slade

sighed as he stared at it. Here was one more proof that the mind created its own illusions. He, who had had so much experience with that reality, whose very presence in the universe of the three-eyed was a living evidence of the importance of mind over matter, still continued to be fooled.

His mind had jumped to the conclusion that it was Amor who had come to his room. When the hand had first come into the light, minutes ago, he had noticed nothing unusual. Now he did.

It was a woman's hand all right, but rather worn. And not young looking at all. How he could have mistaken it even in the reflected light, was a puzzle.

This was Caldra the mysterious, Caldra the Planner, Caldra who, apparently, was now breaking her blood fast. The realization came to Slade that he was participating in a personal tragedy. A woman whose craving for blood had once nearly destroyed her was drinking blood again.

He was aware of the syringe being withdrawn from his arm. The light winked out. A pause. The sound of thick liquid squirting heavily into a container came next, and then once more silence.

Slade pictured the hand slowly raising the cup towards the fumbling lips. His timing was perfect. As his mental picture of her hand reached her lips, there came an audible gulping.

The sound made Slade a little sick. But pity came too. The emotion died, as fingers touched the bed. He thought with a scowl: More?

But it was the straps that let go their constricting hold on his chest and arms. Footsteps shuffled towards the door, which closed softly.

Silence settled. After a little, Slade slept. When he wakened, a great paw was pressing down on his mouth, and a beast as big as a bear, but with oddly catlike features, was looming over him. Its strong, big, hairy body was illumined by a light held by men in uniform.

Other uniformed men were holding Slade's arms and legs. And he had a dismaying glimpse of still more men in the corridor outside the bedroom.

The animal's great paw withdrew from his face. He was lifted, and carried. There was a light in the living room. He saw Caldra lying face down on the floor, a knife driven to the hilt into her back.

Slade had a horrible, empty sensation. Amor! What about Amor?

It was that thought that must have done it. Under him, the floor dissolved as if it were made of nothingness. He fell about fifteen feet, and struck hard. He lay dizzily for more than a minute before understanding came.

He raised himself slowly, scratching his hands on the frozen stubble of a wheat field. About two miles to the west the lights of the city of Smailes blazoned the night sky. Slade climbed to his feet, and headed for the granary where he had left

his car. It was still there, silent and lightless.

He waited a few minutes, but there was no sign of Leear. Tired though he was, he drove all the rest of that night, and part of the next morning. It was 11:00 a.m. when he turned up his private drive.

A letter was in the mailbox, in the familiar, masculine handwriting of Leear. Slade frowned at it, then tore it open. It read:

Dear Michael Slade:

Now you know. You have seen Naze. You must have wondered why nothing happened at the exact end of the twenty-four hours. Nothing could happen until after that time, and then only if you received a sufficiently strong shock.

This shock, of course, was provided when one of the women came in and attempted to obtain some of your blood. It was regrettable that such a situation had to be forced, but there was no alternative.

It was unfortunate, too, that I had to let the group in Naze think that there would be an attack. They have no conception of the kind of man they are fighting. Against the immortal Geean, any plan of theirs would fail automatically. Their inability to understand the nature and strength of the enemy is proved by the fact that they accepted without question that the barrier could be destroyed by an attack with a so-called dissembler on a protuberance at the ninetieth floor of the central tower of Geean.

There is no such insrument as a dissembler, and the protuberance on the tower is a radiator. Geean will never be defeated except by an attack into the heart of his stronghold. Such an attack cannot be made without your help, and this time you must come by yourself, as the device which I used beside the granary has only temporary effects.

Do not wait too long.

Leear.

In the daytime, he read and remained within the limits of his yard. At night, hat pulled low over his third eye, head hunched down into the collar of his overcoat, he walked the frozen streets. Slowly, the fever went out of him, and he became grimly sardonic in his attitude to what had happened.

"I am not," he decided, "the stuff of which heroes are made. And I have no desire to get killed in the war between Naze and the ship."

He had better adjust himself to the idea of remaining on this earth.

The half decision made it possible for him to consider Leear's letter from a less emotional viewpoint than when he had first read it. The rereading after three weeks was even more interesting than he had expected, now that his lips did not tighten with anger at the ruthless way Leear had precipitated him into Naze, and so, callously, caused the death of Amor and Caldra.

The letter was basically far less irritating than he had thought. And it certainly lacked the commanding tone that he somehow expected from her. In addition, her frank admission that his help was necessary mollified Slade tremendously.

He was vaguely pleased, too, that she had underestimated him. Her analysis of the kind of shock that would send him back to Earth had been wrong. Caldra coming for blood had scarcely ruffled his nerves. And it had taken the sight of her dead body and a mental picture of Amor similarly murdered to affect him.

After three weeks, he felt him-

self immune to shock. Caldra and Amor began to seem just a little unreal, like figments of a dream. Slade knew that he had come a long way out of a dangerous mental state when he could think of Amor and feel satiric about his impulse to ask her to marry him.

He did not feel contemptuous of the emotions involved. They were human basics, and it struck him that it might be a sound idea to marry again right here on Earth. If he could persuade Miriam to come and live with him again, that would be a decisive act not easily overthrown by any sudden impulse to rush off to that other plane of existence.

He must resume old relationships, return to a normal Earth existence.

It was easier decided than done. One night, while he was still planning the proper approach to make to Miriam, he met two friends of his business days. They nodded and hurried past, and stopped only when he turned and called after them. The conversation that followed was one of those lame, horrible affairs but Slade was persistent. It seemed to him in his dogged frame of mind that if he was going to live on Earth, he had to have friends and a wife. Those were the concomitants of a sane existence, and he knew better than even to attempt to do without them.

Slade did not enjoy the conversation any more than the two men. They were by turns uneasy, jocular, unhappily silent, eager to impart information, and, finally, they hurried off with a "Glad to have met you, Mike, but we're late now for an engagement. Be seeing you."

Slade walked home his lips curling ironically, but there was a vague chill in his backbone. He had learned, among other things, that Miriam had had a "new" boy friend for several months, and there was something strangely final about that fact. As if his last escape route was closing inexorably.

He did not give up so easily. He phoned Miriam the next day, and the day after that, and each day for the week following. Each time her maid said, "Who is calling?" Then, "Miss Crenshaw does not care to speak to you."

Slade wrote her a letter, in which he said, "After all I can have the eye covered with grafted skin." He followed up the letter with a personal visit. But Miriam was "out."

It was fairly ultimate. Particularly when a detective called the next day, and asked him to cease his "persecution" of his former wife. The officer was considerably impressed by the beautiful residence, but he was a man who knew his duty. "We have received a complaint, y'understand. We'll have to take action if it continues, y'understand?"

Slade understood. His little dream was over.

STATEMENT MADE TO CORONER'S JURY BY WILFRED STANTON

I was first employed by Michael Slade as a houseman about five years ago. I was with him, with only a brief holiday, throughoutt the past year.

My employer was away from home several times during that period. He always seemed in an upset condition after each such absence, but he did not take me into his confidence. Before his final departure, I noticed a new air of decisiveness about him, as if he had finally made up his mind about something after a long uncertainty. He bought a second automatic, a match to the one he already had, and a great deal of ammunition for both weapons. He also purchased other items, but I did not see what was in the packages that arrived for him. He read almost continuously. I remember one book dealt with metallurgy, another was a volume on physics, and a third about the new rocket ships.

All this time, too, he was sitting out in the yard with his eye charts. These exercises were unusual in that he wore a light durable hunting suit made of waterproof materials, which he had had made. In addition he carried two automatics, a hunting knife and a pouch of ammunition. His pockets also seemed to be stuffed, but I don't know what was in them.

Mr. Slade was aware of my awareness of the unusualness of this get-up, and he seemed amused at my anxiety. One day, he told me not to be alarmed if he went away without warning.

It was the day after that that I called him for lunch, and he was gone. His disappearance was unusual in that the chair and the charts were just as he had left them, and particularly unusual in that there was snow on the ground, and his tracks should have been visible leading out of the yard. I saw no tracks that would indicate a departure.

I can only say that I was not surprised when Mr. Slade's dead body was discovered last week two hundred miles from here. He was obviously expecting something to happen. And it did.

TO BE CONCLUDED.

IN TIMES TO COME

Coming up next month is a yarn by Theodore Sturgeon, called "Mewhu's Jet." Ted's come up with an interesting and unusual idea—for complete and perfect frustration. One of those items that, however, can't be described without destroying the effect thereof. It's a good yarn—and the little jet job Mewhu had was really a handy gadget, by the way. It'd saw wood, let you down to a soft landing, or dispose of an enemy with equal finesse.

Also with us will be Clifford Simak's new "Cities" series story—"Hobbies"; I'm trying to get Simak going on more of the series now. He's had several ideas in a semi-finished form, but they're hard to jell, apparently.

The articles that have been appearing in Astounding will continue, as we gradually change the title on the cover—see page 3—but may I invite your attention to *Air Trails* magazine. It's now a real sister magazine; not only another Street & Smith magazine, but now being edited from the same office. Many fact articles too long for Astounding will be appearing there.

THE EDITOR.

BY JOHN MacDOUGAL

CHAOS, CO-ORDINATED

***Earth** didn't stand much chance of winning against a galaxy, when the multitude of races was co-ordinated by a perfect thinking machine. But machines have their limitations. No imagination—no soul, no poetry in 'em!*

The Q-boat was a microcosm of sounds and odors in the featureless void. Ozone-sharp air, heavy with the fumes of hot oil and other more ambiguous smells, rang monotonously with the straining creak of heavily-laden metal. Protestingly, the huge hull groaned into Area Arekand, by the Dron star.

Svoboda listened to the noisy beams with ironic pessimism. Area Arekand held a strategic Celestial base, and no other Earthman knew as well as he just how little the immense size of the Q-boat would mean were they detected by the enemy. He and Matt Blythe had a weapon, the newly discovered Kor beam—incredibly deadly by Earthly standards, it would be useless against any opponent larger than half their size.

And also they had the Idea, far more deadly and at the moment even more useless.

"Ship," reported Blythe nervously. The older man shook himself out of his lethargy and scanned the screen.

"Might not be dangerous," he said dubiously. "It's the same type of patrol cruiser that picked up the *Prometheus* in the first days. Not really a warship, but a lightly-armed police vessel." He mused a moment, then added, "Though of course the types change constantly."

Blythe turned toward him, black

eyes curious, the tension momentarily gone from his face. "That's right, I'd forgotten. You were in that first crew, weren't you?" He ran grease-stained fingers through his yellow hair. "It must have been quite a sensation."

Svoboda smiled. His own gray eyes remained fixed on the image of the Celestial ship, now perceptibly larger; but his thoughts plunged back, seeking out lost emotions of a moment now a part of history. Quite a sensation! Well, a young man would say that. But only those who had shared the feelings of the people of Earth when the *Prometheus* had embarked could be expected to understand.

And then the second shock—another ship, flashing in the encircling wilderness of stars—the crude Earth ship pinned helpless against the blackness, and metal fists ringing the air lock. Then had come the questioning, and the reports back to authorities which were sometimes at Rigel, sometimes on the other side of the Galaxy.

Quite a sensation.

"We should have stayed on the ground," he muttered. "The worst bad luck in the universe, that we should have discovered the stellar drive by accident, two centuries early. If it had only come in normal sequence, we'd have been better prepared for them."

"I don't see that it would have made much difference," Blythe protested. "They've been converging on the center of the Galaxy for a long time, anyhow; they'd have hit Earth before the two centuries were up. And what's another two hundred years against a culture with *three million years* of continuous development behind it?"

The metal cube affixed to the control panel began to glow softly, and both men turned worried stares upon it. "They're signaling," Blythe whispered. "I hope that thing gives back the right answers. Isn't there *any* way we can control it?"

"No. They don't know themselves how it works, or we'd have pried it out of prisoners. It has no moving parts—just an inner core of some kind of plastic. The molecules 'remember' whatever strain-pattern has been imposed upon them. That's all we could find out for ourselves."

Blythe swore softly. "I think we've been dealt the wrong set of memories." His fingers trembled on the Kor beam controls. "They're jockeying."

The words were premature. As yet, the ship on the screen showed no signs of beginning the complex, and, to Earthmen, utterly meaningless evolutions which usually preceded the launching of destruction from enemy vessels. Svoboda glared briefly at the captured signaling device, which clung smugly to the air of idiot uselessness it had worn all through the voyage, then looked away again. He felt like a child; for all the fact that he had been one of the very first to see a Celestial ship, encounter Celestials in person, their tactics and

techniques were as baffling as they had been fifteen years ago.

Still, he thought, we *look* like one of their liners on the outside—would to God we could use their internal machinery!—and apparently they haven't anything that can see through a ship's hide. "They may take us at face value," he said. "They're not predatory by nature—"

"Not predatory!" Blythe shouted. He swallowed, and went on in a calmer voice, "You must be nuts. Five million deaths and a quarter of the Earth uninhabitable—"

"We started it," Svoboda cut in, keeping his own voice even with an effort. "Had we submitted . . . no, that's the word that started the war . . . had we *agreed* to Co-ordination, there'd have been no deaths at all. But we had too much of the vitality of the barbarian to accept the idea, and reacted as Co-ordination predicted we would. We played Helvitii to their Rome—except that they knew we were coming."

"They fight like decadents," Blythe agreed. "When they're hurt, they quit—"

He broke off, eyes wide, as the vicious shape on the screen made an impossibly hard turn and hurtled obliquely toward them in a complex spiral path. Svoboda felt the sweat start out all over his body; Blythe's unsteady fingers centered the cross-hairs on the screen, an unspoken question.

"Go ahead," Svoboda said. "They look mad."

The Kor beam key clacked home. Somewhere below circuit-breakers crashed open, and the needles on the board did a mocking electrical ballet. Svoboda's memory made a fantastic association and turned up a picture of the party that had preceded the flight of the *Prometheus*—

But the beam had gotten fairly off. It appeared in the screen, eight to ten meters of bright ribbon, traveling in its usual maddeningly leisurely fashion. It was supposed to be hitting the speed of light in some other space, but the part of it that was in this one loafed sinfully.

The enemy, however, seemed unwilling to veer, and swept stubbornly along the predetermined helix. The bright ribbon sheared headfirst across it like a hot knife and emerged on the other side, leaving behind its incandescent cancer. Svoboda's eyes followed it as it glimmered away; he had never been able to see a Kor beam fired without thinking of that day millennia ahead, when all of them that had ever been launched would return to their points of origin—nothing less than a major planet could dissipate the catalytic space-strain they represented.

Blythe's voice jarred him out of his hypnosis. "Good, but not good enough," he said tensely. "They've already discovered how to stop the catalysis. They're pulling back for a stern chase. It just means they'll call in their friends."

"What happened down below?"

Blythe gestured wearily to the boards. "See for yourself. It's all

we could expect. We're lucky to have pushed all this dead weight this far without something giving. If this Idea you have locked up in your head is worth anything, trot it out now. We're slated for cooking in a slow Celestial fire."

The Aldebaran commander—or, more exactly, executor—of the Celestial scout took the routine steps and settled down to watch. Considerable damage had been done them before the poison field had halted it, and it was no longer practicable to engage in close combat. In such a situation the procedure was almost always the same: one retired to a reasonably safe distance, called for help, and sprayed the enemy with heterodyne pattern SD-3.

"SD" did not mean "slow destruction," since the Executor's language was not English; but the phrase summarized his knowledge of the weapon. After a million years of living in a culture run entirely by Co-ordination, neither the Aldebaranes nor any more recently amalgamated culture understood their machines. The machinery worked, and the decisions of Co-ordination were never, and could not be, wrong; it was unnecessary to know anything more.

The Earth ship was a sitting duck for SD-3. It had been damaged, somehow, even before the engagement, and could not put on enough speed to work clear of the insidious, metal-fatiguing radiation, nor come to grips with the evasive Celestial scout. The Executor, however, was not idle, nor did any member of his desperate crew think it odd that he merely sat and watched the tank during a combat. A part of his duty was to watch the behavior of the always-unpredictable Earthmen in this situation and to report back to Co-ordination whatever facts he found, no matter how seemingly irrelevant. Eventually there would be enough information available for Co-ordination to predict this bewildering enemy's move. At that point, the war would cease to be fought by people at all—Co-ordination's robots would take over.

Thus, from the throat microphones the Executor was wearing, a running account flashed back halfway across the Galaxy to the great tabulators of the Hollow World. "Ship appears to be of liner type assigned by us for use in outlying sectors. Obsolete response to usual signals. Subsequent attack answered by catalytic field of type first used in Draco engagement. Enemy shows weakness out of proportion to size, possibly already damaged by unknown agencies. No instrumental evidence of any Celestial type drive in operation; steady blast of low-frequency cosmics, typical of Earthly stellar drive, but with erratic pulse indicating compensators out of phase. See tape. Nodes of curve increasing in usual SD-3 pattern, with break-up of enemy predicted for 240-50 seconds."

Halfway across the wheel of stars, a great machine gunned a series of "holes" into the basic tapestry called space, and instantly

an equal number of electrons emerged in the Aldebarane's communication circuits. The facsimile slot stuck out a red tongue at him, and he took the proffered card.

Data received, integrated c Earth history annum 1918. Predictions:

1st order: Ship will break up as usual. Expedition for purpose of sabotage or espionage. Expect lifeships; destroy.

2d order: Ship is one of class designed as Celestial. Expect further such masquerading; attack at once if signal-memories are suspicious.

The Executor regarded the scarlet chit with mild surprise. Usually the Predictions went to a strategy center; apparently the situation demanded fast action of the warships. However, he was familiar, as was every Celestial, with the cards and their meaning. First-order probabilities were directives to immediate steps; second-order were always the bases of contingent preparations. No step had been undertaken in Celestia for thousands of years before Aldebaran's absorption without having been subjected to this kind of test.

The Earth ship gave a sudden wild leap which carried it nearly out of the field of the tank. The Aldebarane grabbed at the control panel, then spoke once more.

"Enemy has begun an irrational series of maneuvers. Observer's opinion is that it has been too seriously weakened by SD-3 to survive them. Object may be to mask escape of lifeship, but no such vessel detected as yet." He took the mikes off his throat and gave his full attention to the boards. The scene in the tank was being sent back, anyhow, along with the second-by-second responses of his instruments; his running commentary was a safety factor not required now. There was no real telling what it was that the Earthmen were up to—their illogical manner of fighting was well-known throughout the local fleet units—but he knew that their time was limited if they expected to accomplish anything.

There was a crack of light on the Earth ship's hull, then another, both hazed by a flurry of snow which formed and as rapidly disappeared with the escaping air. The Q-Boat was falling apart—the fatigue-field had weakened it dangerously, and its own crazy jumping about had done the rest. The Executor spoke sharply on the intercom circuit, and other sets of eyes, with other sets of instruments in the scout's skin blisters, joined his in sharp scrutiny of the disintegrating wreck.

But there were no lifeships. The scout watched until the Q-Boat was nothing but a chaotic group of metal meteors, jagged fragments of all sizes revolving about each other, or colliding and darting off in aimless directions. In one such chunk there was a brief, feeble spurt of power, as if some last mechanism were expending its energy into the void; the detectors automatically marked it, but it showed no further indication of life. When it clashed blindly against another and bounded off into the outer darkness, wobbling drunkenly, the tracers released

it. The Celestial scout limped off toward its home base.

The ungainly chunk from the Q-Boat continued to wobble along its course, with a toothbrush and a blob of oily waste revolving about it as tiny moons. For two hours, the only current Svoboda allowed to flow in it was a tiny trickle running through a radiometer tube; not until the target in that acorn-sized space began to glow steadily, without the least pulse, did he turn the other instruments on.

"Out of range," he said.

Blythe heaved a huge sigh. He felt better now than he had since the trip first began. To pass an enemy undetected was only a temporary relief; but to be given up as dead—that gave a man a certain feeling of security.

"I'm beginning to think that our friends are not the mental giants they pretend to be," he chuckled. "To be taken in in that fashion—it's downright simple-minded."

Svoboda didn't smile. "No individual Celestial is much smarter than a highly intelligent Earthman. It's the machine, Co-ordination, that we have to outsmart—and don't imagine that anybody will ever get away with this fragment-shaped lifeship trick again. That scout ship will carry photographs of the derelict back with it; Co-ordination will 'mentally' assemble the ship again, and speedily discover that only one section got away from the vicinity fast enough to escape being in the pictures. After that, the order'll be to blast every chunk of Terrestial wrecks, no matter how misshapen and lifeless it looks." He tapped Blythe's shoulder emphatically. "Almost any trick is good with them—*once*."

The point didn't depress Blythe much now, even though he knew as well as did his companion the essential dilemma. Despite the immense pressure of resource and technology that Celestia could exert, time, distance, and temperament were on the Earthmen's side; but these balanced scales were inexorably tilting toward Celestia through the enemy's ability to apply any new principle or fact instantly in every part of the Galaxy they occupied. Earth's strategists were forced into the position of gag-men, struggling frantically for new tricks, new twists and angles to take the enemy in just once.

But Blythe was well pleased to have profited by one such gag. "Where are we going?" he asked cheerfully. "We'll never make the Hollow World now."

"Truth to tell," admitted Svoboda, "I never thought we would. We were amazingly lucky to have penetrated this far before discovery. Our only choice now is to head for Area Arekand and see whether or not we can bluff our way into a Dron station."

Blythe began to feel puzzled again. "You surely don't think you can sabotage Co-ordination from this distance? Whatever tools and weapons we brought are so much flotsam now."

"Well, there's that," Svoboda grinned, pointing as the toothbrush

satellite drifted across the screen. "And the one tool that had any chance of working from the very start is still with us, and that's the Idea, which I still have stored between my ears." He dialed the Dron star into view. "We weren't assigned a Q-Boat just because GHQ liked our faces, you know. Nor did *they* think we'd make the Hollow World with equipment that's failed to make it again and again.

"Well?"

"I've got a formula," Svoboda said. "It was worked out by the most high-powered crew of semanticists and psychologists on Earth. It means nothing to me, and would mean nothing to you—just an equation, a harmless little chain of symbols.

"But to Co-ordination, it will be death itself. It's a devil's jigsaw puzzle of fantasies, designed to crack wide open a Brain that recognizes only facts."

His face was somber in the dim light. "Too bad, in a way, that wonderful mechanism must become a shattered maniac because of a single senseless phrase. But with Co-ordination, it's the trick that only has to work once."

Svoboda nudged a tumbler, and the miniature drive behind them hummed very softly. The life craft began to pick up speed.

"Nevertheless," Blythe said, "I'm just as glad we've got side arms."

"That," said the attendant, "is the most ridiculous-looking ship I've ever seen in my life, and I've seen some exotic ones."

Svoboda smiled and sat down in the pressure room's one chair, leaving both Blythe and the Celestial standing. "I'm inclined to agree with you," he admitted smoothly. "But our lab had orders to test this new type of Earth drive, and Co-ordination suggested this shape as least likely to attract the Earthmen's attention."

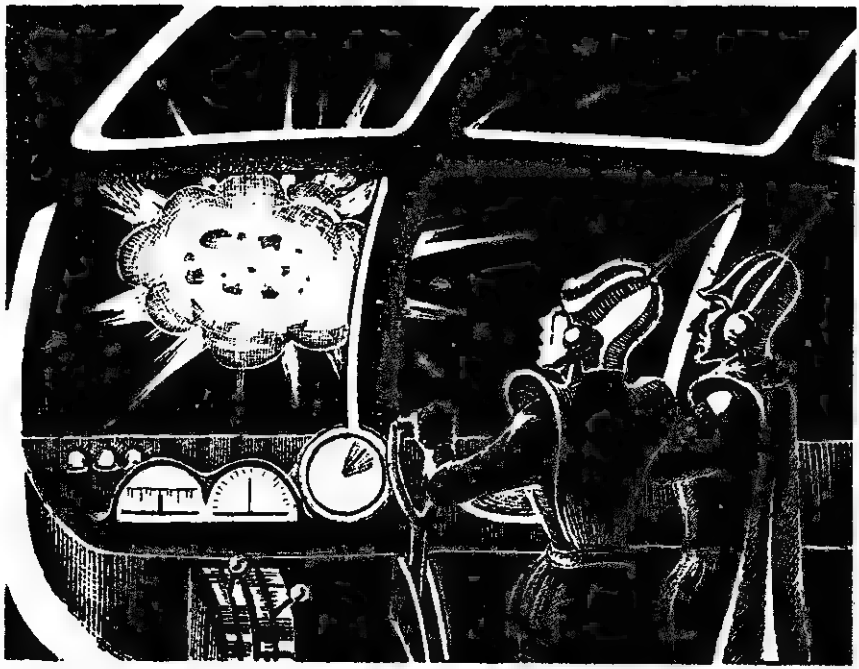
The Celestial, as with most of his kind assigned to the zones of combat, was anthropomorphic, but even so his idea of an admiring headshake was eerie. "Even when you know how it's done, the results that come out of the Hollow World are incredible. Of course, our people—I'm Cygni, the Menea system—is sort of new to Celestia; I expect we'll get used to it eventually."

"Cygni?" Svoboda repeated, raising his eyebrows. "You're a long way from home, friend—though probably no farther than we are."

The Celestial's lack of curiosity was gratifying; Svoboda wasn't quite sure what he'd have answered had the Cygnian asked about their origin.

"No way of telling from language," the Celestial remarked. "I must admit I'm a little tired of being actually *unable* to speak anything but the Terrestial tongue. I'll be glad when this tour of duty is over and I can get reconditioned and go home."

"Me, too," Blythe put in, tired of being silent partner. Svoboda



darted him a covert glance of approval and arose.

The Celestial seemed to hesitate, then said quickly, "Forgive me if this offends, but I have so little to do I like to mull things over. Tell me—do you androids have emotions?" The creature actually looked as if it might be blushing.

Svoboda did a quick double-take and smiled indulgently. "After all, we *are* designed to pass for Earthmen," he said. "So we have to be capable of duplicating their feelings well enough to pass some rather rigid tests. I think we'd better report. Is the chamber in the usual spot?"

"Don't know what the usual spot is in your part of the Galaxy; I'd better show you." The Celestial walked across the room; the door swung open silently as he approached, and closed behind them. Their progress into the interior of the station was marked by a constant sentient sliding of doors; it made Blythe feel as if he were involved in a sort of multiplex mousetrap.

The port before which they stopped was small and heavy, and Blythe regarded it with increasing uneasiness.

"Here it is," the Celestial said, waving three spatulate fingers. "Just press the red button in the usual —"

In the confined space, the explosion slammed Svoboda back against the wall like a stuffed doll. Shaking his head, he tried to maintain his

balance. His skin stung with the hard radiation.

"Lousy three-fingered snakes," Blythe snarled. "I thought it was going too smoothly. I'll bet the place swarms with Marines." He brandished his pistol at the open door. "Two cots and a water tap! Some report chamber. If I hadn't been standing at just the right angle—"

Svoboda nodded confusedly. "You caught me off guard; thought you'd gone trigger-happy. I should have known Co-ordination'd have the whole thing figured out and the station warned while we were still in flight."

"Any ideas where the real report chamber is?"

Svoboda tried to think, while his companion shifted warily. "It's probably back the way we came," he finally declared. "I saw some sort of communication device in the pressure chamber anteroom. How they tricked us!"

"Let 'em try to trick a few atom slugs," Blythe growled. "Flatten to the wall a second." The pistol spat back down the corridor and the bulkhead at its end roared out of existence. "Run!"

The room beyond was deserted. "Something else up their sleeves," Blythe panted, skidding to a momentary halt. "I hope I don't breach any outer walls."

Whroom! went the succeeding door. Still no one in sight. The two charged forward toward the next chamber. That door slid open obligingly at the last instant.

"Svoboda!"

But the older man, dazed and winded, couldn't check himself in time. As he stumbled across the threshold, there was a soft hiss, and he sank tiredly to the patterned floor.

Blythe cursed and planted his back against the wall. He recognized the sound—"Sleep-beat," a supersonic hand weapon common in Celestia. It wouldn't penetrate any intervening object.

"Better surrender," someone on the other side advised calmly. "You're trapped in this station, no matter how long you elude us— and we have your companion as hostage."

The young Earthman's thoughts raced. He didn't know how many doses of Sleep-beat it took to ease a man out for keeps, and he didn't dare risk the loss of the precious Idea. Wait—was there nitrogen in this air, or else some inert gas that was insoluble in the bloodstream? He sniffed despairingly, knowing his nose could not tell him. He'd have to chance it.

"You're the trapped ones," he shouted. "If you aren't out of there with your hands up by the time I count ten, I'll blow your side wall and let your air out. One—two—three—"

At eight, four of them filed in and stood solemnly across the room with raised hands. Blythe made a quick guess.

"Five more counts for the rest of you," he called, "or I shoot these four here, one at a count, until you're all in."

After the fifth count, he coldbloodedly blasted the first Celestial into greasy smoke.

"Stop, you filthy savage! We're coming." Two more of them entered, one in a half-donned spacesuit. Blythe nodded grimly, peered cautiously around the sill, then backed into the anteroom. His probing fingers found a button; he grinned into the five furious faces as the port slid shut.

"Ya buncha lilies!"

Then he stopped smiling and regarded the door's blank face with an equally blank mind. What was there to do now? *He* didn't know the formula, and Svoboda—

For several precious moments, he worked over the silent, recumbent figure. The older man was breathing deeply, in infuriating peacefulness, and Blythe couldn't get so much as a mumble from him. Any moment now, reinforcements—ships, perhaps—would be arriving, and it would all be for nothing.

He arose and walked over to the communication set. There was the red button—probably it was really the one to touch. But what to say? The formula was perfectly calculated for the vast brain of Co-ordination; nothing he could say would replace it. Aimlessly he poked his finger into the mocking red eye.

"Proceed," the speaker intoned.

For a second more he stood; then, despairingly, he let his subconscious take over. "'Just the place for a Snark,' the Bellman cried, as he landed his crew with care—'" Blythe took a deep breath and continued as well as his memory would permit.

"Yes, yes," Svoboda broke in impatiently, getting to his feet and stalking back along the deck. "I understand all that. Then you let 'em in, which was sensible, and they clapped us into this flying prison and shot us off. *But what in space did you feed to Co-ordination?*"

"Po'try," Blythe said with a sheepish expression.

The other groaned softly. "Now I've heard everything. Couldn't you just have thought up a string of confusing statements of some kind that might have done *some* good?"

"What could I have thought up that would have replaced a formula evolved by experts? They should have intrusted me with the formula itself, anyhow."

"But what good . . . why—" Svoboda stopped and swallowed hard. "Almost *any* nonsense would have been better than telling them 'My love is like a red, red rose.'"

"Cool off," Blythe retorted, unruffled. "I didn't say anything of the kind. I recited a sort of children's rhyme I learned when I was eight."

Svoboda opened and shut his mouth several times, but found no words to express what he thought of such enormous stupidity. All that seemed to come out was "Yaaaoooowooo, oooo—"

Blythe let him sweat it out. At last the older man asked weakly: "What's the name of the rhyme?"

Blythe told him. There was a long silence, then Svoboda cut loose with a war whoop. "By the gods! Lad, you're a genius! I bump my forehead to you—metaphorically, anyhow. You've smashed Co-ordination."

His companion regarded him suspiciously. "Your sarcasm is stinging," he said. "Ah, well, it's all up for us, anyhow—they'll probably hang us to the nearest chromium hall-tree when we hit the Hollow World." He looked out toward the front of the ship, where there most definitely was *not* a control board.

"I wish I hadn't lost my toilet kit in the fighting. There's a set of old keepsakes in it, with high sentimental value to me." He sighed. "We could have shot some craps on the way."

The Aldebarane's cruiser fringed Area Arekand and began gingerly to skirt the small star-group called Çaganides. It was at this point that Co-ordination had predicted a focus of Q-Boat activity; it had no tenanted planets, but several communication lines crossed it, and the selectors of the Hollow World had indicated it as the most likely trial grounds for the Terrestial masqueraders.

That, unfortunately, had been the last report from Co-ordination for several hours, and the Aldebarane was becoming nervous and irritable. The delay was unbelievable. He was well aware that none of his present tactical resources were adequate to deal with a disguised enemy. In space warfare, no action was correctable; if you blasted a friendly ship, there were seldom any survivors to whom to apologize, and, contrariwise, a three-second delay in establishing the identity of an enemy was usually all the time that the enemy would need to make the error fatal.

Had this been all, he would not have worried quite so much: it was part and parcel of the hazards of battle. What complicated the matter was the commerce-raiding, terrifically dangerous to a culture so huge that no single solar system could be self-sufficient at its level of technology. The Q-boats invariably avoided warships—indeed, had a maddening habit of slipping into a formation of Celestial freighters and looking innocuous while the protectors were nearby, only to erupt atomic shells in all directions as soon as they had gone. The Aldebarane had reported this trick, and now was awaiting a prediction from the Hollow World. None had arrived.

"Small cargo vessels on the Blue Arc," one of the blister "eyes" reported.

"As we go," the Executor said absently. Now that the trick was known, of course, it would soon be useless to the enemy. Co-ordination might rule for convoy, for arming all merchantmen, for a continuous radar count of ships in scheduled formations—or, from its fifteen hundred thousand years' accumulation of cards, something quite unexpected which would solve the problem at a stroke.

"I'm getting low-frequency cos-

nics from somewhere," said the blister eye. "Can't separate them from the space-radiation, but the finder shows a pulse at the bottom of the spectrum."

"Attention the cruiser," the radio said. "Half of these ships joined the group at Area Arekand. I had no notification of such a formation."

"He's lying," said another voice gruffly. "*His* outfit doesn't show on *my* schedule. This is some terrestial trick, Executor."

The facsimile transmitter said "Chuff!" and spat out a red card. The Aldebarane sighed and snatched it up. A look of stunned incredulity came into his eye.

No pertinent information. Proceed as before.

At the strategy lab near Bellatrix, Celestia's battle technicians were assembling a fleet, assembling it with the smooth effortless efficiency of a million years' experience. On the vast wall chart, colored lights announced the movement of units and groups in the staging area several parsecs away; microphonic voices muttered ceaselessly with the reports of task-force commanders, observers, Navy officials on far-off planets.

"Discrepancy in the Rigel quota," someone said in a flat, bored voice. A technie at a transmitter beneath the chart relayed the information; a split second later, red letters glowed on the chart itself.

Area v/B pattern: change Ten.

A quick wave of activity, as the prediction was translated into tactical terms; the red letters faded away; the technie at the desk was already sending on new facts to the Hollow World.

Beneath the quiet exterior, however, there was worry. The two Celestials in charge were watching the chart intently and somewhat unhappily.

"They're way behind. If they don't snap it up, the whole business will be out of hand."

"Have you noticed the new cruisers?" asked the other. "You'd never recognize them."

The senior officer nodded. "You'll get used to that sort of thing after you've been on this job as long as I have. New predictions are always operating; no two ships are ever exactly alike on that account. That's why Executors and ship's crews are reprocessed so frequently; when quantitative changes finally mount up to a qualitative differentiation, new procedures have to be taught from scratch." He stabbed one of his thirty fingers at a group of lights. "That interests me more at the moment."

The other nodded worriedly. "Muddling up, no doubt about it. I don't understand—Teramond, anything on that delayed squadron yet?"

"Just came through," said the technie. On the screen, the lights made a small swirling motion.

"Better," said the senior chief, but he still looked nervous. He crossed the room, muttering. "But the delay will show up somewhere

else." He stood over the desk, as if to frown Co-ordination into action. "Yes! Here it comes."

The technic looked up at him. "I don't get it, chief. They're coming slower and slower all the time. Haven't had one in over sixty seconds."

The red letters traced across the chart again; again the lights made answering motions, but somehow the new pattern looked no better than the old one. The chief made a brusque motion.

"Let me at that thing a minute." He sat down, and, fixing his eyes on the screen, began to speak rapidly into the Dirac transmitter. While he was still talking, another red message wrote itself out; he shook his head furiously and continued to speak. The little lights milled, darted, shuttled innocently, obeying their infallible orders. The junior chief watched them in subdued horror; finally, he, too, came across the room.

"You might as well stop," he said. "That last one was nine minutes late."

The little lights that were a great fleet shifted position confidently to the outdated order. On the top of the screen, another group of lights moved slowly; Terrestials.

The Battle-Fought-By-Chance was on.

In the immense caverns which housed the file-banks of the Hollow World, another group of bewildered technicians listened to an unceasing whirring which filled the atmosphere, a sound which an Earthman might have described as beard-muttering. File cards by the hundreds fountained from the ranked cabinets; on monorail tracks, disposal machines shuttled, carting them off to destruction. Gradually the discarding became spasmodic; from a steady stream, it changed to a matter of regular bursts. In the glowing flues of the atomic converters the rejected cards snowstormed from the disposal gondolas, and winked into oblivion. The Machine muttered.

In the various parts of Celestial civilization, libraries were receiving flabbergasting theses on the physiological causes of the beaver's accent, and how to overcome it in primary school. In the vicinity of Magellan, a group of heavy destroyers were issued star charts without a mark on them except for the stamp in the corner giving date of revision. Newly commissioned captains were equipped with a noisy object resembling a chain of sleigh bells, which was labeled "Extreme emergency only." And during the unprecedented defeat of the Battle-Fought-By-Chance, a number of medical chests labeled "Restoratives" were discovered to contain muffins, ice cream, mustard, water cress, jam, two volumes of "Proverbs of Celestia" and a phonographic voice which began "Why is a raven like a writing desk?" as soon as the lid was lifted.

The Hollow World echoed and roared to the furious activity of the selectors, still running through a

million and a half years' accumulation of fact-cards and destroying them in spurts and spasms.

This mechanical uproar was disquietingly fresh in the Administrator's ear—he had only one—as he entered the psychology clinic. He looked sharply at the two humans, who were sitting on the edges of their beds.

"Are these the ones?" he asked.

The doctor nodded. "We would have destroyed them after examination as usual, but their behavior under testing was so peculiar that we postponed action until expert advice was available."

"Did you file the facts?"

"Yes, but we've had no answer to date, so we called you, as Co-ordination supervisor of this operation."

"I'm not surprised," commented the Administrator, shaking his head. "Filing facts with Co-ordination has been about as efficient as pollinating a statue these last few days. The panic problem is getting bad." He paused for a moment to reinspect the silent humans. "Well, we'll segregate them for observation. There may be some folk-custom involved that might be useful to the military. You remember the absorption of Delta Procyon III? If we'd known then about the folk-custom called 'music,' we'd never have had all that trouble; but the first orchestral score to be picked up was filed under 'Languages' and Co-ordination handled it as such and produced a translation. Some of our observers don't seem to realize that the machine believes whatever it's told, and has no scruples about turning up a nonsensical prediction if it has to act from fantasy instead of facts."

The facsimile transmitter interrupted him, and the doctor took the card. "It's on this case," he said. "Look!" He pointed to the lettering:

Language associations block prediction.

The Administrator nodded gloomily. "That's the way it's been for three days now. Did you ever stop to think that Co-ordination knows every language spoken, and three or four nobody's fed it, but what it's deduced must exist somewhere? Yet lately it doesn't seem to know *anything.*" He sighed. "Oh, well—we can't do anything but what we're told. Transfer the prisoners to comfortable quarters and teach them the language as fast as possible."

REPORT of Administrator IV, Publ Rel Op 6
Ref Earth: Case of two detected enemy agents
Section 2: Behavior
(extract)

. . . a folk-custom known as *religion* or *worship* which prevails upon various planets near the periphery is also practiced upon Earth. It consists of the giving of homage to classes of beings known as *gods,* who are supposed to be immeasurably superior to humans. There are many of these gods, some of which appear to have made personal visits to their worshipers, but in the ordinary course of events, no more than one at a time is worshiped by any single social group. In this case the diety is a female—polar class of bisexualism—called

by them "Lady Luck"; their actions upon being questioned they declared to be prayers for assistance from this diety.

The younger of the two also declares that their present plight is traceable to the loss, earlier in their journey, of a talisman of some kind. This talisman is intimately bound up with their belief in the existence of some better world than Earth, to which Earthmen who behave properly are transported by the approving diety. The talisman is referred to by the same term as this other world: *Paradise* or *Pairodice—the* phonetic problem in the English language makes the spelling uncertain. . . . The talisman appears to have been left accidentally in the outpost station where the men were captured, while tampering—

The Administrator finished the paragraph, signed the report, and slipped it into the transmitter. After the barest glance at the waiting men, he began to shuffle in puzzled gloom through the news chits from the stalemated inner border. The humans were stupid and unco-operative; the news was unbelievably bad, and Co-ordination appeared to have run amok. He had never heard of a machine that refused to work unless it was kicked, but now, after 1,500,000 years of perfect operation, the machine had suddenly decided not to return a result unless the technies lost their tempers and shouted at it. And they were helpless even to investigate; they no longer knew how their supposed slave worked. Co-ordination had always announced its forthcoming mechanical troubles, days in advance, and given its own orders for correcting them —and the reports from outside were increasingly disturbing.

The Administrator wondered briefly if a mechanical brain could grow senile.

A voice in the cool air intoned: "Official wishes to speak to you on the screen, Administrator."

"Where from?"

"I don't know; his race is unknown to me. But he says it's important."

The Administrator nodded, and the technie tripped the controls. As the caller appeared on the screen, a simultaneous gasp arose from the prisoners.

Luckily a long black gown, banded with scarlet, concealed most of the official's body; what was visible was featured chiefly by a cascade of regular white curls. It also had hands and a face—of sorts. The Administrator blinked. He was used to outre shapes, but he decided at once to spend the entire conversation looking at something else if it were at all possible.

The visitor glared fixedly at him through a plastic lens. "Good day to you, sir," it said in a voice as gruesome as its form. "I am appointed by Co-ordination as juridical overseer for this area. The order is that facts on points of law are to come to me before being relayed."

The Administrator risked a look at the creature's face. "I've heard of other men of your race taking such jobs in the past month," he said slowly. "It seems to me to be very inefficient—in fact, an anachronism."

"We do not know the pros and cons of the order," the visitor re-

plied woodenly. "We have been manufactured directly by Co-ordination for the purpose of running this sequence; any questions will have to be put to the machine itself."

It broke off as Svoboda leaped from his seat with a shout. "So *that's* it!" Both Celestials glared at him. "You're finished! I had no idea it would work this well!"

"Sit down," said the Administrator in a dangerously quiet voice. "And you, sir," to the creature, "please report to the adjudication Executor. I am conducting an investigation at the moment; I will speak with you later."

The screen had barely blanked around the stranger when the Administrator had forgotten him. "If there is anything to defeat Earth," he told Blythe intensely, "it is it's infantile habit of exulting over victories not yet won. You simply cannot seem to realize the resources we can bring to bare in exploring your most ambiguous remark."

"On the contrary," Svoboda chuckled, "that's exactly how you've been beaten. We've turned your own strength against you. Your mighty resources, and I'm just beginning to realize how mighty they really are, are working on our side now."

But the Administrator was not listening. The tabulator on his desk clicked busily for a moment, and then he told the microphone: "Chart distribution of new jurists."

There was a long pause; the Celestial had come to expect it, though. He waited fatalistically until the voice said: "Thus far, the Snarks have taken over only in disappearance areas—"

"*What!* What areas are these?"

Again the maddening wait. Finally the screen lit, and across it paraded a montage of deserted factories, warships, cities, and observation posts. This illustrative matter was followed by a distribution map, but the Administrator punched the controls furiously and the chart was replaced with a new picture: a close up of an outpost world, recognizable only by the familiar shapes of its silent fortresses. He signaled for finer focus, and the planet sped silently across the screen. Every installation was deserted. The machinery was almost entirely undamaged, and, of course, in operation, since Co-ordination ran power plants by direct Dirac control; the central boards were going through the motions of announcing an approaching ship, but no one was present to heed it.

The Administrator began to dial the map back in. As the scene faded, a black-robed shape glided across it; he restored the knobs to their original position as quickly as he could move, but the figure had vanished. He looked at the desolate, abandoned machinery for a moment in indecision, then signaled for a prediction.

Nothing happened.

He started up out of his seat and swung on the two men. "The resources of a million and a half years are not yet exhausted," he said in forcedly calm tones. "Hnrutegh! Put in a call for scopolamine-delta

and a psychologist." His control was returning as he added to the Earthmen: *"Whatever* it is that you or your cohorts have done, we'll know whatever you know about it in detail within the next twenty minutes."

He glared at them triumphantly and Svoboda felt himself freezing. This had been the one weak spot even in the original plan, the one contingency GHQ had feared from the start. If they could have gotten away, or had been killed, after making the false report to Co-ordination, all would have been well—but now—if through truth-serum, hypnotism, or whatever psychic probes Celestial science could bring to bear, he and Blythe were forced to reveal the truth. Co-ordination could readjust itself at once, and Earth would be irrevocably lost. The amount of damage done in the interim would be of no importance in such an event; it was the weight of Co-ordination itself—the *process* of co-ordination—that would crush Earth, not the materials co-ordinated.

For, in fighting this machine, any trick was good—once!

Svoboda's mind stopped racing,

and he thought of jumping at the Administrator's wobbly throat.

Chuff.

The Administrator grabbed the red card so quickly that it tore halfway across. Here, finally, must be the predictions on the disappearances. "Hold it," he told the intercom.

But the card said:

Ref. report Adm IV, Publ Rel Op 6—Case of two detached enemy agents: The "gods" are individuals of a superrace unknown to Celestia, inhabiting a planet somewhere in the center of the Galaxy; this is the planet to which worthy Earthmen expect to be transported. Obviously the Earth is under a protection unanticipated by Co-ordination.

1st order: Unless the Pairodice, which is a communication device between the prisoners and their unknown patrons, is restored to their possession, Celestia may suffer a flank attack for which it is totally unprepared.

2d order: This attack may be on the way, and avertible only by re-establishment of communication.

The Administrator stared at this final irrationality, a ghastly expression on his face, and Svoboda and Blythe watched him, knowing that the war hung upon this moment.

It wouldn't mean destruction for us. Co-ordination would incorporate our vigor into a greatness that has grown decadent; Earthman would find their place in Celestia, and the place would be high because we have what they lack.

He looked at Blythe, and the expression on the younger man's face thrust down the tiny surge of kinship. *No, this is not the way. Better every race work out its own salvation or doom, whichever it is.*

Eyes fixed upon the features of the Administrator, he saw the momentary impulse fade before the uprushing doubt. It was as if the alien's mind was now open and he could read in it the conflict of thought versus emotional pattern. And he could feel the dead hand of habit and faith and tradition reach out and close about the alien's brain, squeezing out the last drop of independence, crushing the commonsense directive to consider Co-ordination *hors de combat* and use his own intelligence.

The moment was passed, the balance attained. Dully, the Administrator picked up the intercom mike.

"Prepare a ship for Area Arekand—Co-ordination orders. Pick up the two Earthmen and put them on board."

The iris dilated silently, and Blythe and Svoboda passed across the room and through it. Their haste was unnecessary. The Administrator was blind to everything but the idiot words on the card, deaf to everything but the imagined roar of Celestia's collapse.

The ferry ship was a silent, shining microcosm of light and life in the featureless void. Sterile air, synthesized to be neutral to the oxygen-breathers of many worlds, had an ambiguous odor. Its motion insensible to its passengers, the sleek hull hurtled into Area Arekand, by the Dron star.

"Ship," Blythe said, petting the gleaming wall approvingly. "I can't believe it."

"I find it a little hard to believe,

myself," the older man confessed. "Though it's clear enough what happened."

"Is it?" Blythe bore down on Svoboda with a determined glare. "Are you going to explain it now, or do I have to bite notches in your ears?"

"All right, all right! You remember that you recited sections of 'The Hunting of the Snark' to Co-ordination as an observer's report. The machine was geared to accept anything told it by observers as fact, since there had been no reason for its builders to condition it against lies or just plain nonsense. The machine, in short, was incapable of distinguishing between fact and fantasy."

"That much I gathered," said Blythe. "But there aren't any facts in the Carroll poem that would mean anything to the machine."

"Aren't there? You forget that any statement is useful to such a machine. It treats anything you say to it as a 'fact' to be correlated with everything else that has ever been said to it. I was guilty of the same mistake—I underestimated exactly how great the machine's resources were, just as the Administrator declared, until that legal-Johnny appeared."

"Maybe you better start at the beginning."

"All right. What are the basic assumptions in the poem—in the parts of it you recited? Well, there are a lot of minor ones, which must have fubared things in all directions once Co-ordination accepted them. For instance, that!

> They roused him with muffins, they roused him with jam,
> They roused him with mustard and cress,
> They roused him with ice and judicious advice,
> They set him conundrums to guess.

must have upset the medical practice in Celestia. There's another assumption that Carroll makes; that maps without any lines on them are useful in navigation—easier to understand. That must have had some effect on the Celestial navy. There are lots of 'facts' of that order in the poem."

Blythe said softly: "And things like that busted up a millennia-old culture?"

"No, not exactly—those are just sidelights. There is one 'fact' in the poem that is all-important, although I didn't realize it at the time. That was because I was underestimating the machine. It's the single, simple line:

"'What I tell you three times is true.'"

Blythe leaped up and began to pace the deck excitedly. "I see it!" he chortled. "So, of course, after that, anything which observers told the machine only once was quietly ignored. It couldn't make predictions on such information due to 'insufficient data.'" He gasped suddenly. "And besides that, everything it had ever been told in the past only once or twice was now to be regarded as false."

"And still more. It slowed down communications in Celestia by two thirds. That had tremendous effect, directly proportional to the size of

the area controlled. Facts had to be acted on at once, on opposite sides of the Galaxy, or the structure would come apart. It did them no good to have the Dirac transmitter —I don't suppose we'll ever figure out how that thing works now—if decisions were going to be delayed by a factor of three." He grinned. "Of course, I never dreamed that the collapse would involve the poem's main assumption."

"What was that?"

"The Snark itself, of course."

"Eh?"

"After all, what is the poem about? The hunting of an imaginary creature called the Snark. I underestimated the machine's resources, as I said. With the resources of three million years behind it—even excluding the earlier half of the period before the machine was built, Co-ordination was quite capable of manufacturing a snark, or hundreds, thousands of them if it thought it expedient! And, after all, the critter *is* described as being useful. It's pretty well blueprinted, even in the sections of the poem you gave Co-ordination, and it's stated to be a good lawyer, it's edible, it's useful for striking a light—"

Blythe veered and started to bear down on Svoboda again. "This is too much! I simply can't let a man live who talks such nonsense!"

"It's a fact," Svoboda chuckled as he retreated. "You saw a Snark yourself, although not in the flesh—the gruesome-looking gentleman in the barrister's robe and wig. Because the only description of it you gave was from the 'Barrister's Dream' sequence, when the snark is in court, defending a pig on the charge of deserting its sty.

"But if you think *that's* fantastic, you've forgotten the denouement. Remember—there are two types of snarks mentioned in the poem?"

Blythe's brows wrinkled. "Why . . . uh . . . yeah. There's some with feathers; they bite. And there's some with whiskers; they scratch. But I didn't tell the machine that, I'd forgotten that part of the poem at the time."

"That's not what I mean. Both of these types are described as harmless. But—*some snarks are Boojums.*"

Blythe looked more dangerous than ever, but Svoboda went on relentlessly. "Carroll didn't describe the difference between the ordinary, harmless snark, and the Boojum, and I suppose the machine assumed, as I did, that a Boojum had some additional characteristics which weren't named.

"I at least should have known better, knowing of Carroll's lifelong delight in inverting logical sequence. It's *the missing ingredient* that *makes a Boojum harmless,* not makes a snark a Boojum. Naturally, the result was that people began to disappear wherever one of Co-ordination's new barristers turned up. That's what happens when you meet a Boojum. You 'softly and suddenly vanish away.' "

He laughed again at Blythe's stubborn expression. "I won't believe it," Blythe declared. "If that were so, we should have vanished away, too. We saw a Boojum."

"No—we saw an image, and heard a reproduction of the creature's voice. But we didn't *meet* it. How else can you explain those vast areas completely deserted except for the—Boojums?"

"So Celestia softly and suddenly vanished away!"

"It'll take some time before it's all over. But the attack on Earth is stopped for good. Eventually there'll be nothing left but Boojums and the machine."

He pondered for a moment, then gulped suddenly. "Matt—do you realize what else you've done? You've killed interstellar travel!"

"Huh?"

"Look: the snarks—Boojums—are manufactured; they aren't going to die, they'll just have to wear out. And the machine can go on turning them out until *it* wears out for lack of technies to repair it. But that might be a long time—during which space is going to be full of creatures utterly deadly to meet!"

Blythe yawned. "We can wait."

"But supposing these critters attempt a landing on Earth?"

"A Boojum inside a spaceship is no more dangerous than any other enemy. Shoot 'em down. Anyhow, we'll get home soon enough to start going on some sort of Boojum-paste, or Snark-repellant, or whatever." He lay down on one of the bunks. "Nothing to worry about."

THE END.

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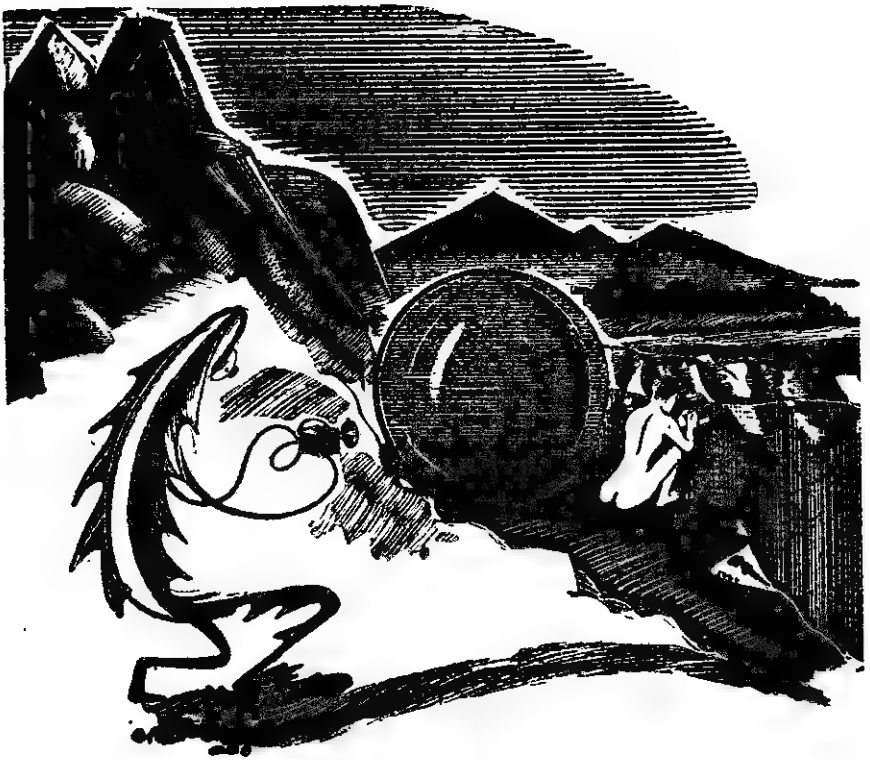


ASSUMPTION UNJUSTIFIED

BY HAL CLEMENT

It was an easy error to make. To an alien being, a man is a man is a human being. Even human beings have trouble, sometimes, telling one man from another. The alien's assumption—

Thrykar saw the glow that limned the broad pine trunk with radiance and sent an indefinite shadow toward the spot where he lay, and knew that extreme caution must direct his actions from then on. He had, of course, encountered living creatures as he had felt his way through the darkness down the forested mountain side; but they had been small, harmless animals that had fled precipitately as the sounds denoting his size or the odors that warned

of his alienness had reached their senses. Artificial light, however, which he and Tes had seen from the mountain top and which was now just below him, meant intelligence; and intelligence meant—anything.

He felt the ridiculousness of his position. The idea of having not only to conceal his intentions, but even his existence, from intelligent beings could seem only silly to a member of a culture that embraced literally thousands of physically differing races, and Thrykar did have a rising desire to stand on his feet and walk openly down the main thoroughfare of the little settlement in the valley. He resisted the temptation principally because it was not an unexpected one; the handbook had warned that such a reaction was probable—and warned in the strongest terms against yielding to it.

Instead of yielding, therefore, he resumed his crawling, working his way headforemost downhill until he had reached the tree. Hugging the rough trunk closely, he reared his eight feet of snaky body to full height behind it, tapped out the prearranged signal to Tes on the small communicator he carried, and began carefully examining the town and the ground between him and the outlying houses.

It was not a large town. About three thousand human beings lived in it, though Thrykar was not familiar enough with men to be able to judge that fact from the number of buildings. He did realize that some of the structures were probably not dwelling places; the purposes of the railway station became fairly clear as a lighted train chugged slowly into motion and snaked its way out of town to the north. Most of the lights were concentrated within a few blocks of the station, and it was only in that neighborhood that Thrykar could see the moving figures of human beings. A few lighted windows, and the rather thinly scattered street lamps, were all that betrayed the true size of the place.

There was another center of activity, however. As the sound of the train died out in the distance, a rhythmic thudding manifested itself to Thrykar's auditory organs. It seemed to come from his right, from that portion of the town nearest to the foot of the mountain. Leaning out from behind his tree, he could see nothing in that direction; but a fact which he had only subconsciously noted before was brought to prominence in his mind.

Only a few yards below him, the mountainside fell away abruptly in a sheer cliff which seemed, in the darkness, to extend for some distance to either side of Thrykar's position. The undergrowth which covered the slope continued to the very edge of this cliff; so the alien dropped once more to the prone position and wormed his way downhill until he could look over. He hadn't improved matters much, as the darkness was impenetrable to his eyes, but the sounds were a

little clearer. They were quite definitely coming from the right and below; and after a moment's hesitation, Thrykar began crawling along the cliff edge in that direction. The bushes, which grew thicker here, hampered him somewhat; for the flexibility of his body, which was no thicker than a man's, was offset by the great, triangular, finlike appendages which extended more than two feet outward on each side. These, too, were fairly flexible, however, ribbed as they were with cartilege; and he managed to accommodate himself to the somewhat uncomfortable mode of travel.

He had gone less than a hundred yards when he found the cliff edge to be curving outward and down, as though it were the lip of a somewhat irregular vertical shaft cut into the mountain. This impression was strengthened when the curve led back to the left, away from the source of sound that Thrykar wished to investigate; but he continued to follow the edge, and eventually reached its lowest point, which must have been almost directly beneath the place at which he had first looked over. At this point things became interesting.

On Thrykar's left—that is, within the shaft—the dripping of water became audible; and at the same time the bushes and irregular rocks disappeared, and he found himself on what could be nothing but a badly kept road. He did not realize its condition at first; but within a few feet he found a rivulet flowing across it, in a fairly deep gully which it had cut in the hard earth. Investigating this flow of water, he found that its source was the shaftlike excavation, which was apparently full of water almost to the level of the road. With growing enthusiasm, Thrykar found that the hole was fully a hundred and fifty yards in the dimension running parallel to the face of the mountain; and he had learned during his descent that it had fully half that measure in the other direction. If it were only deep enough—he was on the point of entering the water to investigate, when he remembered the communicator, which might suffer damage if wet, and from which he had promised Tes not to separate himself. Instead of investigating the pit, therefore, he turned back, following the road toward the sounds which had first roused his curiosity.

His progress, on the legs which were so ridiculously short for his height, was not rapid. In fifteen minutes he had passed two more of the water-filled pits and was approaching a third. This he was able to examine in more detail than the others, though he could not approach it so closely; for the road at this point, and the water near it, were illuminated by the first of the town's outlying street lamps. A few yards farther, on the side of the road away from the pits, house lights began to be visible; and, seeing them, Thrykar paused to consider.

The sound was evidently coming

from farther inside the town. If he went any further in his investigations, he not only sacrificed the shelter of darkness, but could also expect a heavier concentration of human beings. On the other hand, his skin was dark in color, the lights were by no means numerous, he was very curious about the sounds which had continued without interruption since he had first heard them, and it would be necessary to confront a human being eventually, in any case—though, if all went well, the human being would never know it. Thrykar finally elected to proceed, with increased caution.

He chose the side of the road away from the pits, as it was somewhat darker at first, and offered some concealment in the form of hedges and fences in front of the houses, which now began to be more numerous. He walked, with his mincing gait, close beside these, standing at his full height and letting the great, independent eyes set on either side of his neckless, rigidly set head rove constantly around the full circle of his vision. One more pit was passed in this fashion; but a hundred yards further down the road, on the right side, a wall began which effectually cut off the sight of any more, if they existed. It was a fence of boards, solidly built, and its top was fully two feet above Thrykar's head. The sounds appeared to be coming from a point behind this barrier, but somewhat further down the road.

Having come so far, the alien was human enough to dislike the idea of having wasted his efforts. He crossed the road at a point midway between two street lamps. Between the pits, the brush-covered slope of the hill came down almost to the thoroughfare; so he dropped flat once more to take advantage of this cover as he approached the near end of the wall. He had hoped to find access to the hinder side of the barrier, but he found that, instead of beginning where it was first visible, the portion along the road was merely a continuation of a similar structure that came down the hillside; and Thrykar considered it a waste of time to circumambulate the inclosure on the chance of finding an opening.

Instead, he rose once more to his full height, and looked carefully about him. The neighborhood still seemed deserted. Pressing close against the boards, he reached up and let the tips of his four wiry tentacles curl over the top of the fence. The appendages, even at the roots, were not much thicker than a human thumb, for they were, anatomically, detached portions of the great side fins rather than legs and feet modified for prehensile use: unless they could be wound completely around an object, they could not approach the gripping or pulling strength of the human hand and arm. Thrykar, however, let his supple body sag in an S-curve, and straightened suddenly, leaping upward; and at the same instant exerted all

the strength of which the slender limbs were capable. The effort proved sufficient to get the upper portion of his body across the top of the fence, and during the few seconds he was able to maintain the position he saw enough to satisfy him.

There were two more of the pits inside the fence, dimly lighted by electric bulbs. They contained practically no water, and were enormously deep — the nearer, whose bottom was visible to Thrykar, was over two hundred feet from the edge to the loose blocks of stone that lay about in the depths. The pits were quarries, quite evidently. The stone blocks and tools, as well as the innumerable nearly flat faces on the granite walls, showed that fact clearly. The noises that had aroused the alien's curiosity came from machines located at the bottom of the nearer pit; and the existence of certain large pipes running up from them, as well as the almost complete absence of water, assured him that they were pumps.

There was a further deduction to be drawn from the absence of water. These human beings were strictly air-breathers—the handbook had told Thrykar and Tes that much; and it followed that the pits farther along the mountain side, which had been allowed to fill with water, must no longer be in use. If they were as deep as these, there was an ideal hiding place for the ship.

At that thought, Thrykar let himself slip down once more outside the fence. He flexed his body once or twice to ease the ache where the edges of the boards had cut into his flesh, and started to stretch his tentacles for the same purpose; but suddenly he froze to rigidity. Behind him, on the road down which he had come, appeared a glow of yellow that brightened swiftly—so swiftly that before he could move, its source had swept into sight around the last shallow curve in the route and he was pinned against the fence by the beams from the twin headlights of an automobile.

As the vehicle reached the straight portion of the street the direct beams left him; but he knew he must have been glaringly visible during the second or so in which they had dazzled his eyes. He held his breath as the car approached; and the instant it passed he plunged up the hillside for twenty or thirty yards, wriggled his way under some dense bushes, and lay as motionless as was physically possible for him. He listened intently as the sound of the engine faded and died evenly away in the distance, and finally gave a deep exhalation of relief. Evidently, hard as it was to believe, the occupant or occupants of the vehicle had not seen him.

It did not occur to Thrykar that, even if the driver had noticed the weird form looming in his headlights beams, stopping to investigate might be the farthest thing in the universe from his

resultant pattern of action. Thrykar himself, and every one of his acquaintances—which were by no means confined to members of his own race—would have looked into the matter without a second thought about the safety or general advisability of the procedure.

He was a little shaken by the narrow shave. He should have foreseen it, of course—it was little short of stupid to have climbed the wall so close to the road; but what would be self-evident to a professional soldier, detective, or housebreaker did not come within the sphere of everyday life to a research chemist on a honeymoon. If Thrykar had known anything about Earth before starting his journey, he wouldn't have come near the planet. He had simply noted that there was a refresher station near the direct route to the world which he and Tes had planned to visit on a vacation; and not until he had cut his drive near the beacon on Mercury had he bothered to read up on its details. They had been somewhat dismayed at what they found, but the most practicable detour would have consumed almost the entire vacation period in flight; and, as Tes had said, what others had evidently done he could do. Thrykar suspected that his wife might possibly have an exaggerated idea of his abilities, but he had no objection to that. They had stayed.

The car did have one good effect on Thrykar; he became much more cautious. Having satisfied his curiosity about the sounds, he began to retrace his way to the ship and Tes; but this time he stayed well off the road, traveling parallel to it, until the abandoned quarries prevented further progress on that line. Even then he left the woods and went downhill only far enough to permit him to enter the water without splashing. He swam rapidly across, holding the communicator out of the water with one tentacle, and emerged to continue his trip on the other side. He had wasted as little time as possible, as the pit he had just crossed was the one so comparatively well illuminated by the street lamp.

At the next one, however, he spent more time. Instead of carrying the communicator with him, he cached it under a bush near the road and disappeared entirely under water. It was utterly black below the surface, and he had to trust entirely to his sense of touch; and remembering what he had seen of the walls of the empty quarries, he dared not swim too rapidly for fear of braining himself against an outcrop of granite. In consequence, it took him over half an hour to get a good idea of the pit's qualifications as a hiding place. The verdict was not too good, but possible. Thrykar finally emerged, collected his communicator, and proceeded to the next quarry.

He spent several hours in examining the great shafts. There were seven altogether; two were in use, and inclosed by the fence he had

found, one was rendered unusable by the embarrassing presence of the street lamp; so the remaining four claimed all his attention. The one he had found first was the last, and farthest from the town; but it was the adjacent one which finally proved the most suitable. Not only was it the only one at all set back from the road—a drive about twenty yards in length led down to the water—but it was deeply undercut about thirty-fieet feet below the surface, on the side toward the mountain. The hollow thus made was not large enough to hide the hull of the ship altogether, but it would be a great help. Thrykar felt quite satisfied as he emerged from the water after his second examination of this recess. Recovering the small case of the communicator from its last hiding place, he tapped out the signal he had agreed on with Tes to announce his return. Then he held it up toward the mountain, moving it slowly from side to side and up and down until a small hexagonal plate set in the case suddenly glowed a faint red. Satisfied that he could find his ship when close enough, the alien began his climb.

Just before entering the dense woods above the quarries, he looked back at the town. Practically all the house lights were extinguished now; but the station was still illuminated and the street lamps glowed. The quarry pumps were still throbbing, as well; and, satisfied that he had created no serious disturbance by his presence. Thrykar resumed his climb.

It took his short legs a surprisingly long time to propel him from the foot of the valley to the hollow near the mountain top where the ship still lay. He had hoped and expected to complete the job of concealing the craft before the night was over; but long before he reached it he had given up the plan. After all, it was invisible until the searcher actually reached the edge of the hollow: and he was practically certain that no human beings would visit the spot—though the handbook had mentioned that they still hunted wild animals both for food and sport. He and Tes could alternate watches in any case, and if a hunter or hiker did approach—steps could be taken.

Twice during the climb he made use of the communicator, each time wondering why it was taking so long to get back. The third time, however, the plate glowed much more brightly, and he began to follow the indicated direction more carefully instead of merely climbing. It took him another half hour to find the vessel; but at last he reached the edge of the small declivity and saw the dim radiance escaping from behind the partly closed outer door of the air lock. He slipped and stumbled down the slope, scrambled up the cleated metal ramp that had been let down from the lock, and pushed his way into the chamber.

Tes met him at the inner door, anxiety gradually disappearing from her expression.

"What have you been doing?"

she asked. "I got your return signal, and began broadcasting for your finder; but that was hours ago, and I was getting worried. You had no weapon, and we don't *know* that all Earth animals would fear to attack us."

"Every creature I met, fled," replied her husband. "Of course, I don't know whether any of them would have attacked an Earth being of my size. They may all have been herbivorous, or something; but in any case, you know we could get into awful trouble by carrying arms on a low-culture planet.

"However, I've found an excellent place for the ship, very close to the town. If I weren't so tired, we could take it down there now; but I guess we can wait until tomorrow night. The whole business is going to take us several of this planet's days, anyway."

"Did you see any of the intelligent race?" asked Tes.

"Not exactly," replied Thrykar. He told her of the encounter with the automobile, while she prepared food for him; and between mouthfuls he described the underwater hollow where he planned to conceal the ship and from which they could easily make the necessary sorties. Tes was enthusiastic, though she was still not entirely clear as to the method Thrykar planned to employ in obtaining what he wanted from a human being without the latter's becoming aware of the alien presence. Her husband smiled at her difficulty.

"As you said, it's been done before," he told her. "I'm going to sleep now; I haven't been so tired for years. I'll tell you all about it tomorrow." He rose, tossed the eating utensils into the washer, and went back to the sleeping room. The tanks were already full; he slid into his without a splash, and was asleep almost before the water closed over him. Tes followed his example.

He had not exaggerated his fatigue; he slept long after his wife had risen and eaten. She was in the library when he finally appeared, reading once again the few chapters the handbook devoted to Earth and its inhabitants. One of her eyes rolled upward toward him as Thrykar entered.

"It seems that these men are primitive enough to have a marked tendency toward superstition—ascribing things they don't understand to supernatural intervention. Are you going to try to pass off our present activities in that way?"

"I'm not making any effort in that specific direction," he replied, "though the reaction you mention may well occur. They will realize that *something* out of the ordinary is happening; I don't see how that can be avoided, unless we are extremely lucky and happen on an individual whose way of life is such that he won't be missed by his fellows for a day or so. I'm sure, however, that a judicious use of anaesthetics will prevent their acquiring enough data to reach undesirable conclusions. If you will

let me have that book for a while, I'll try to find out what is likely to affect their systems."

"But I didn't think we had much in the way of drugs, to say nothing of anaesthetics, aboard," exclaimed Tes.

"We haven't; but we have a fair supply of the commoner chemicals and reagents. Remember your husband's occupation, my dear!" He took the book, smiling, and settled into a sling. He read silently for about ten minutes, leafing rapidly back and forth in a way that suggested he knew what he was looking for, but which made it very difficult for his wife to read over his shoulder. She kept on trying.

Eventually Thrykar spent several consecutive minutes on one page; then he looked up and said, "It looks as though this stuff would do it. I'll have to see whether we have the wherewithal to make it. Do you want to watch a chemist at work, my beloved musician?"

She followed him, of course, and watched with an absorption that almost equalled his own as he inventoried their small stock of chemicals, measured, mixed, heated and froze, distilled and collected; she had only the most general knowledge of any of the physical sciences, but in watching she could appreciate that her husband, in his own occupation, was as much of an artist as she herself. It was this understanding, shared by very few, of this side of his character that had led her to marry an individual who was considered by most of his acquaintances to be a rather stodgy and narrow-minded, if brilliant, scientist.

Thrykar connected the exhaust tube of his last distillation to a small rotary pump, confining the resultant gas in a cylinder light enough to carry easily. Even Tes could appreciate the meaning of that.

"If it's a gas, how do you plan to administer it?" she asked. "Judging from their pictures, these human beings are much more powerful than we. You can't very well hold a mask over their faces, and even I know it's not practical to shoot a jet of gas any distance. Why don't you use a liquid or soluble solid that can be carried by a small dart, for example?"

"The less solid equipment we carry and risk losing, the better for all concerned," replied Thrykar. "If the air is fairly still and there is no rain, I can make them absorb a lungful of this stuff quite easily. It has been done before, and on this planet—you should pay more attention to what you read." He rolled an eye back at his wife. "Did you ever blow a bubble?"

Tes stood motionless for a moment, thinking. Then she brightened. "Of course. I remember what you mean now. Passing to another phase of the problem, how and where do you find a human being alone?"

"We attack that matter after moving the ship. We'll have to watch them for a day or two, to learn something about their habits in this neighborhood—the book is

not very helpful. If a lone hunter or traveler gets near enough, the problem will solve itself; but we can't count on that. I've done all I can here, my dear. We'll have to wait till dark, now, to move the ship."

"All right," replied Tes. "I'm going outside for a while; our only daylight view of this planet was from high altitude. Even if we can't get close to any small animals, there may be plants or rocks or just plain scenery that will be worth looking at. Won't you come along?"

Thrykar acquiesced, with the proviso that neither of them should wander far from the hollow in which the ship was located. He was perfectly aware of his limitations in an uncivilized environment, and knew that it wouldn't take a very skillful stalker to approach

them without their knowing it. In the open, that could be dangerous; with the ship and its equipment at hand, countermeasures could always be taken.

They went out together, leaving the outer air lock door open—it could have been locked and reopened electrically; but Thrykar had once read of an individual in a position similar to theirs who had returned to his ship to find the power cut off by a burned-out relay, leaving him in a very embarrassing position. The weather was overcast, as it had been ever since their arrival, but there were signs that the sun might soon break through. The woods were dripping wet, which made them if anything more unpleasant for the aliens. The temperature was, from their point of view, cool but not uncomfortable.

There was plenty of animal life. Although none of the small creatures permitted them to approach at all closely, the two were able to examine them in considerable detail; retinal cells rather smaller than those in the human eye and eyeballs more than three times as large permitted them to distinguish clearly objects for which a human being would have needed a fair-sized opera glass. The bird life was of particular interest to Tes; no such creatures had ever evolved on their watery home planet, and she made quite a collection of cast-off feathers.

The largest animal they saw was a deer. It saw them at the same moment, standing at the edge of the hollow at a point where very few trees grew; it stared at them for fully half a minute trying to digest a new factor in its existence. Then as Tes made a slight motion toward the creature, it turned and bounded off, disappearing at once below the edge of the cup. They hastened toward the spot where it had stood, hoping to catch a final glimpse, but they were far too slow, and nothing was visible among the trees when they got there. Tes turned to her partner.

"Why isn't it possible to use an animal like that? It's easily large enough to take no harm, and must be at least as similar to us as these human beings." Thrykar rippled a fin negatively.

"I'm a chemist, not a biologist, and I don't know the whole story. It has something to do with the degree of development of the donor's nervous system. It may seem odd that that should affect its blood, but it seems to—remember, every cell of a creature's body has the chromosomes and genes and whatever else the biologists know about in that line, which make it theoretically possible to grow a new animal of the same sort from any of the cells. I don't believe it's been done yet," he added with a touch of humor, "but who am I to say it can't be?"

Tes interrupted him with a gesture.

"Tell me, Thrykar, is that throbbing noise I hear now the one produced by those pumps? I'm

surprised that it should be audible at this distance. Listen." He did so, wondering for a moment, then gave once more a sign of negation.

"It's a machine of some kind, but I can't say just what. It doesn't seem to be down there in the town—we'd be hearing it more definitely from that direction. It might be almost anywhere among these mountains—not too far away, of course—with echoes confusing us as to its point of origin. It can't be an aircraft, because it's too loud and look out! *Don't move, Tes!*" He froze as he spoke, and his wife followed his example. As the last words left his mouth, the pulsing drone increased to a howling roar which, at last, had a definite direction. The eyes of the aliens rolled upward to follow the silvery, winged shape that fled across their field of vision scarcely five hundred feet above them.

The pilot of the A-26 saw neither the aliens nor their ship. He passed directly above the latter, so that it was out of his direct vision; and although Thrykar and Tes felt horribly conspicuous in the almost clear area where they were standing, the speed of the machine and the pilot's preoccupation with the task of navigating combined to prevent untimely revelations.

As the roar faded once more to a drone, Thrykar galvanized into action. He plunged into the hollow toward his ship; and Tes, after a moment's startled immobility, followed.

"What's the matter?" she called after him. "I don't think he saw us, and anyway it's too late to do anything about it."

"That's not the trouble," replied Thrykar as he flung himself up the ramp into the ship. "You should have spotted that yourself. You mentioned something this morning about the tendency of man toward superstition. If he's in that stage of social development, he shouldn't have more than the rudiments of any of the physical sciences. The book said as much, as I recall; and I want to check up on that, right now!" He snatched up the volume, which fell open at the already well thumbed section dealing with Earth, and began to read. Tes, with an effort, forbore to interrupt; but she was not kept waiting long. Her husband looked up presently, and spoke.

"It's as I thought. According to this thing, mankind has as one of its most advanced mechanisms the steam-powered locomotive. I saw one last night, you may recall. I assumed without really giving the matter much thought that the quarry pumps were also steam-driven. It says here that animals are even used for hauling or carrying loads over short distances. That all ties in with a culture still influenced by superstition. The book does *not* mention aircraft—and that machine wasn't steam-powered. Those were internal-combustion engines. I think now that the pumps in the quarries had similar power plants; and if men

can make them at once light and powerful enough to drive aircraft, they know more of molecular physics and chemistry than they should."

"But why should that be a man-made ship?" asked Tes. "After all, we are here; why shouldn't another spaceship have come in at the same time? After all, Earth is a refresher station."

"For a variety of reasons," replied Thrykar. "First, anyone coming here for refreshing would keep out of sight, as we are doing; and that ship flew in plain sight of the town below here, and made racket enough to be heard for miles. Second, that wasn't a spaceship—you must have seen that it was driven by rotating airfoils and supported by fixed ones. Why should anyone from off the planet go to the trouble of bringing and assembling such a craft here, when they must have infinitely better transportation in the form of their spaceship? No, Tes, that thing was man-made, and there's something very wrong with the handbook. It's the latest revision on this sector, too—the Earth material is only sixty or seventy years old. I hope it isn't so badly off on the biology and physiology end; we certainly don't want to cause injury to any man."

"But what can you do, if the book can't be trusted?"

"Feel my way carefully, and go on the evidence already at hand. We can't very well leave now—you're safe, as you aren't of age yet, but I might be in rather bad shape by the time we reached another refresher station. We'll carry on as planned for the present, and move the ship down to the quarry tonight. I just hope the human race isn't so far advanced in electronics as they seem to be elsewhere; if they are, we are wide open to detection. I wonder how in blazes the individual who reported on this planet could have come to do such a slipshod job. Failure to measure their chemical or biological advancement is forgivable; those wouldn't be so obvious; but missing aircraft, and electric lights, and internal-combustion engines in general is a little too much. However," he left the vexing question, "that is insoluble for the present. The other point that arises, Tes, is the one you mentioned. I'm afraid they *won't* bear a superstitious attitude toward our activities, if they become aware of them; and we'll have to be correspondingly more careful. If you can think of anything that will help between now and nightfall, it will be appreciated."

Neither of them did.

Bringing the little craft down the mountain side in the dark was rather more difficult than Thrykar had anticipated. He was afraid to use micro-wave viewers because of the new-born fear of the scientific ability of the human race; it was necessary to drift downhill at tree-top level, straining his eyes through the forward ports, until the slope flattened out. The lights of the

town had been visible during the descent, and he had kept well to their left; now he backed fifty feet up the hill, turned on the reflection altimeter—whose tight, vertical beam he hoped would not scatter enough to cause a reaction in any nearby receivers—and crawled along the contour in the general direction of the lights.

He had allowed more leeway than was strictly necessary, and was some distance to the north of the quarries; but at last the dial of the altimeter gave a sudden jump, and two aliens looked carefully out of the ports as Thrykar let the ship descend, a foot at a time. At last the hull touched something—and sank in; they were at the first quarry. The ship lifted again, a little higher this time for safety as its course slanted in once more toward the mountain. Again a flicker of the needle; again the cautious descent; but this time it was permitted to sink on down after the hull made contact.

The ship stopped sinking when it was about three-fourths submerged, and Thrykar guided it carefully to the side of the great pit where he had located the undercut. While the nose continued to bump gently against the granite, he let water into compartment after compartment until the hull was completely under water—he could have used the drive, but preferred to have the ship stable in its hiding place. He did use power to ease into the hollow, which he located by use of an echo-sounder; its impulses would not be detectable out of the body of water in which they were used.

Leaving Tes to hold the ship in position temporarily, Thrykar plunged out through the air lock and made fast, using metal cables clipped to rings in the hull and extending to bars set into cracks already in the rock. He could have drilled holes specifically for the purpose, but not silently; and the existing facilities were adequate. The work completed, he tapped on the hull to signal Tes. She cut off all power, let the ship settle into stability, and joined Thrykar in the water. It was the first swim she had had since they had started the trip, and they spent the next hour enjoying it.

A little more time was spent exploring the ground around the quarry and out to the road; then, on the chance that the next day might be more hectic than those preceding, they sought the sleeping tanks. Thrykar, before sliding into the cold water, set an alarm to awaken him shortly before sunrise.

Before the sun was very high, therefore, he and Tes were at work. They explored once more, this time by daylight, the environs of the pit; and among the bushes, heaps of crushed rock, and broken blocks of granite they found a number of good hiding places.

None was ideal; they wanted two, more or less visible from each other, commanding views along at least a short stretch of the road passing the quarry. One was very

satisfactory in this respect, but unfortunately it was situated on the side away from the town and covered that segment of road which they planned to watch more to insure safety than in expectation of results. On the other side, a space under several blocks was found from which it was possible to view the other hiding place and the quarry itself, but to see the road it was necessary to crawl some twenty yards. As the crawl could be made entirely under fair cover, Thrykar finally selected this space, and stored the gas cylinders and auxiliary equipment therein.

From the point where he could see the road, Tes' hiding place was invisible; and after a moment's indecision he called to her. He was sure no human beings were as yet in the neighborhood, but he made his words brief. Then he crawled back to the edge of the quarry. As his station was some distance up the hillside, he was fully sixty feet above the water; but he launched himself over the lip of granite without hesitation, and clove the surface with no more sound than a small stone would have made from the same height.

He entered the submerged ship, inclosed two of the small communicators such as he had used on the first night in water-tight cases, and brought them to the surface. Climbing painfully to where Tes was watching, he gave her one; then he returned to his own place, crossing above the quarry.

He settled down to his vigil, reasonably sure that the tiny sets were not powerful enough to be picked up outside the immediate vicinity, and relieved of the worry that Tes might see something without being able to warn him.

They did not have long to wait. Tes was first to signal that something was visible; before Thrykar could move to ask for details, he himself heard the engine of the car. It sped on down the road and into town—an ancient, rickety jalopy, though the aliens had no standard with which to compare it. Two more passed, going in the same direction, during the next fifteen minutes. Each held a single human being—hired men from the farms up the valley, going to town on various errands for their employers, though the watchers had no means of knowing this. After they had passed, nothing happened for nearly an hour.

At about eight o'clock, however, Tes signaled again; and this time she tapped out the code they had agreed upon to indicate a solitary pedestrian. Thrykar acknowledged the message, but made no move. Again the traveler proved not to be alone; within the next five minutes more than a dozen others passed, both singly and in small groups. They were the first human beings either of the aliens had seen at all clearly, and they were at a considerable distance, though the eyesight of the watchers did much to overcome this handicap. Practically all of them were carrying small parcels and books. They varied in height from about half that of

Thrykar to nearly three 'quarters as tall, though, as individuals of a given size tended to form groups to the exclusion of others, this was not at once obvious to the watching pair.

And that was all. After those few chattering human beings had passed out of sight and hearing into the town, the road remained deserted. Once only, shortly before noon, one of the automobiles clattered back along it; Thrykar suspected it to be one of those he had seen earlier, but had no proof, as he was not familiar enough with either vehicles or drivers to discern individual differences. As before, there was only one occupant, who was not clearly visible from outside and up. For some seven hours he was the only native of Earth to disrupt the solitude.

Tes, younger and less patient than her husband, was the first to grow weary in the vigil. Some time after the passage of the lone car, she began tapping out on the communicator, in the general code which he had insisted on her learning in the conformity of the law, a rather irritated question about the expected duration of the watch. Thrykar had been expecting such an outbreak for hours, and was pleasantly surprised at the patience his wife had displayed, so he replied, "One of us should remain on guard until dark, at least; but there is no reason why you shouldn't go down to the ship for food and rest, if you wish. You might bring me something to eat, also, when you've finished."

He crawled back to the point from which he could see Tes' hiding place, and watched her move to the edge of the quarry, poise, and dive; then he returned to his sentry duty.

His wife had eaten, rested, brought up food for him, and been back at her place for some time before anything else happened. Then it was Thrykar who saw the newcomer; and in the instant of perception he not only informed Tes, but formed a hypothesis which would account for the observed motions of the human beings and implied the possibility of productive action in a very short time.

The present passer turned out not to be alone; there were two individuals, once more carrying books. Thrykar watched them pass, mulling over his idea; and when they were out of sight he signaled Tes to come over to his hiding place. She came, working her way carefully among the bushes above the quarry, and asked what he wanted.

"I think I know what is going on now," he said. "These people we have seen pass apparently live somewhere up the road, and are required for some reason to spend much of the day in town. It is therefore reasonable to assume that they will all be returning the way they went, some time before dark. I am quite sure that the two who just passed were among

those who went the other way this morning.

"Therefore, I want you to watch here, while I work my way down to the place where the little road from this quarry joins the other. You will signal me when more of these people approach; and I, concealed at the roadside, will be able to get a first specimen if and when a solitary human being passes. If others approach while I am at work, you can warn me; but it should take only a few seconds, and the creature need not be unconscious much longer than that. Even if others are following closely, I can arrange matters to seem as though it had a fall or some similar accident. I am assuming that no one will come from the other direction; it's a chance we have to take, but the amount of traffic so far today seems to justify it."

"All right," replied Tes. "I stay here and watch. I hope it doesn't take long; I'm getting mortally weary of waiting for something interesting or useful to happen."

Thrykar made a gesture of agreement, and gathered his equipment for the move.

Jackie Wade would have sympathized with Tes, had he dreamt of her existence. He, too, was thoroughly bored. Yesterday hadn't been so bad—the first day of school at least has the element of interest inherent in new classes, possible new teachers, and—stretching a point—even new books; but the second day was just school. Five years of education had not taught Jackie to like it; at the beginning of the sixth, it was simply one of life's less pleasant necessities.

He looked, for the hundredth time, at the clock placed by intent at the back of the room. It lacked two minutes of dismissal time; and he began stealthily to gather the few books he planned to take home for appearance's sake. He had just succeeded in buckling the leather strap about them when the bell rang. He knew better than to make a dash for the door; he waited until the teacher herself had risen, looked over the class, and given verbal permission to depart. Fifteen seconds later he was in front of the school building.

His brother James, senior to him by two years and taller by nearly a head, joined him a moment later. They started walking slowly toward the country road, and within a minute or two the other dozen or so boys from the valley farms had caught up with them. When the last of these had arrived, Jackie started to increase his pace; but his brother held him back. He looked up in surprise.

"What's the matter?" he asked. "You getting rheumatism?" Jimmy gestured toward small figures, some distance in front.

"Fatty and Alice. Let 'em get good and far ahead. We're going swimming, and Fatty's a tattler if there ever was one."

Jack nodded understandingly, and the group dawdled on. The shortest way to the quarries would

have taken them past the still active pits and—more to the point—past the houses lying farthest out on the road. The adult inhabitants of one or two of these dwellings had made themselves unpopular with the boys by interfering with the swimming parties; so before the country road was reached, the group turned north on a street which ran parallel to the desired route. This they followed until it degenerated into a rutted country lane; then they turned left again and proceeded to cross the fields and through a small wood—the straggling edge of the growth that covered the mountain—until the road was reached. It was approached with caution, the boys making an Indian stalk of the business.

There was no sign of anyone, according to the "scouts"; the two girls had presumably passed already. The party hastily crossed the road, and ran down the drive that led to the most secluded of the quarries. Thrykar was not the first to appreciate this quality. Thirteen boys, from seven years of age to about twice that, dived into convenient bushes, shed garments with more haste than neatness, and a moment later were splashing about in the appallingly deep water.

They were all good swimmers; the parents of town and valley had long since given up hope of keeping their offspring out of the quarries all the time, and most of them had taken pains to do the next best thing. Jackie and Jimmie Wade were among the best.

Thrykar, whose journey down to the road had been interrupted by the boisterous arrival of the gang, didn't think too much of their swimming abilities; but he was fair-minded enough to realize their deficiencies in that respect were probably for anatomical reasons. His first emotion at the sight of them had been a fear that they would discover the hiding place where the gas cylinders and Tes were concealed, and he had returned thereto in a manner as expeditious as was consistent with careful concealment. The fear remained as he and Tes carefully watched from the edge of the pit; but there was nothing they could do to prevent such a discovery. On dry land they could not move nearly so fast as they had seen the boys run; and there were too many eyes about to risk a drop over the edge into the water.

Two or three of the boys did climb the sides of the quarry some distance, to dive back down; but Thrykar, after seeing the splashes they made on entry, decided they were not likely to come much higher. He wondered how long they were likely to stay; it was obvious that they had no motive but pleasure. He also wondered if they would all leave together; and as that thought struck him, he glanced at the gas cylinders behind him.

The boys might have remained longer, but the local geography influenced them to some extent. The quarry was on the east side of the mountain, it was mid-afternoon, and

most of the water had been in shadow at the time of their arrival. As the sun sank lower, depriving them of the direct heat that was necessary to make their swimming costume comfortable in mid-September, their enthusiasm began to decline. The youngest one present remembered that he lived farther up the valley than any of them, and presently withdrew, to return fully clothed and exhorting one or two of his nearest neighbors to accompany him.

Jackie Wade looked at the boy in surprise as he heard his request.

"Why go so soon? Afraid of something?" he jeered.

"No," denied the seven-year-old stoutly, "but it's getting late. Look at the sun."

"Go on home if you want, *little* boy," laughed Jack, plunging back into the water. He lived only a

short distance out on the road, and was no less self-centered than any other child of ten. Two or three of the others, however, appreciated the force of the argument the youngster had implied, rather than the one he had voiced; and several more disappeared into the bushes where the clothes had been left. One of these was James, who had foresight enough to realize that the distance home was not sufficient to permit his hair to dry. After all, they *weren't* supposed to swim in the quarry, and there was no point in asking for trouble.

This action on the part of one of the oldest of the group produced results; when Jackie clambered out of the water again, none of the others was visible. He called his brother.

"Come on and dress, fathead!" was the answer of that youth. Jackie made a face. "Why so soon?" he called back. "It can't even be four o'clock yet. I'm going to swim a while longer." He suited action to the word, climbing up the heaped blocks of granite at the side of the quarry and diving from a point higher than had any of the others that day.

"You're yellow, Jim!" he called, as his head once more broke the surface. "Bet you won't go off from there!" His brother reappeared at the water's edge, dressed except for the undershirt he had used as a towel—which would be redonned, dry or otherwise, before he reached home.

"You bet I won't," he replied as Jackie clambered out beside him, "and you won't either, not today. I'm going home, and you know what Dad will do if you go swimming alone and he hears about it. Come on and get dressed. Here's your clothes." He tossed them onto a block of stone near the water.

A voice from some distance up the road called, "Jim! Jackie! come on!" and Jim answered with a wordless yell.

"I'm going," he said to his brother. "Hurry up and follow us." He turned his back, and disappeared toward the road. Jackie made a face at his departing back.

In a mood of rebellion against the authority conferred by age, he climbed back up to the rock from which he had just dived, forcing Thykar, who was making his best speed down the hill with a load of equipment in his tentacles, to drop behind the nearest cover. Jackie thought better of his intended action, however; the dangers of swimming alone had been well drilled into him at an early age, and there was a stratum of common sense underlying his youthful impetuousness. He clambered back down the rocks, sat down on the still warm surface of the block where his clothes lay, and began to dry himself. Thrykar resumed his silent progress downhill.

As he went, he considered the situation. The human being was sitting on the stone block and facing the water; at the moment, Thrykar was directly to his left, and still somewhat above him. Tes was more nearly in front, and still further

above. If there was any wind at all, it was insufficient to ripple the water; and Thrykar had recourse to a method that was the equivalent of the moistened finger. He found that there was a very faint breeze blowing approximately from the east—from the rear of the seated figure. Thrykar felt thankful for that, though the circumstance was natural enough. With his skin still wet, Jackie felt the current of air quite sharply, and had turned his back to it without thought.

It was necessary for Thrykar to get behind him. This entailed some rather roundabout travel through the bushes and among the blocks of stone; and by the time the alien had reached a position that satisfied him, the boy had succeeded in turning his shorts right side out and donning them, and was working on the lace of one of his shoes—he had kicked them off without bothering to untie them.

Thrykar, watching him sedulously with one eye, set the tiny cylinders on the ground, carefully checked the single nozzle for dirt, and began to adjust the tiny valves. Satisfied at last, he held the jet well away from his body and toward Jackie, and pressed a triggerlike release on the nozzle itself. Watching carefully, he was able to see faintly the almost invisible bubble that appeared and grew at the jet orifice.

It was composed of an oily compound with high surface tension and very low vapor pressure; it could, under the proper conditions, remain intact for a long time. It was being filled with a mixture composed partly of the anaesthetic that Thrykar had compounded, and partly of hydrogen gas—the mixture had been carefully computed beforehand by Thrykar to be just enough lighter than air to maintain a bubble a yard in diameter in equilibrium.

He watched its growth carefully, releasing the trigger when it seemed to have attained the proper size. Two other tiny controls extruded an extra jet of the bubble fluid, and released another chemical that coagulated it sufficiently in the region near the nozzle to permit its being detached without rupture; and the almost invisible thing was floating across the open space toward Jackie's seat.

Thrykar would not have been surprised had the first one missed; but luck and care combined to a happier result. The boy undoubtedly felt the touch of the bubble film, for he twisted one arm behind his back as though to brush away a cobweb; but he never completed the gesture. At the first touch on his skin, the delicate film burst, releasing its contents; and Jackie absorbed a lungful of the potent mixture with his next breath. For once, the book appeared to be right.

Thrykar had been able, with difficulty, to keep the bubble under observation; and as it vanished, he emerged from behind the concealing stone and dashed toward his subject. Jackie, seated as he was with feet clear of the ground, collapsed backwards across the block of

granite; and by some miracle Thrykar managed to reach him and cushion the fall before his head struck the stone. The alien had not foreseen this danger until after the release of the bubble.

He eased the small body down on its back, and carefully examined the exposed chest and throat. A pulse was visible on the latter, and he gave a mutter of approval. Once more the handbook had proved correct.

Thrykar opened the small, waterproof case that had been with the equipment, and extracted a small bottle of liquid and a very Earth-appearing hypodermic syringe. Bending over the limp form on the rock, he opened the bottle and sniffed as the odor of alcohol permeated the air. With a swab that was attached to the stopper, he lightly applied some of the fluid to an area covering the visible pulse; then, with extreme care, he inserted the fine needle at the same point until he felt it penetrate the tough wall of the blood vessel, and very slowly retracted the plunger. The transparent barrel of the instrument filled slowly with a column of crimson.

The hypodermic filled, Thrykar carefully withdrew it, applied a tiny dab of a collodionlike substance to the puncture, sealed the needle with more of the same material, and replaced the apparatus in the case. The whole procedure, from the time of the boy's collapse, had taken less than two minutes.

Thrykar examined the body once more, made sure that the chest was still rising and falling with even breaths and the pulse throbbing as before. The creature seemed unharmed—it seemed unlikely that the loss of less than ten cubic centimeters of blood could injure a being of that size in any case; and knowing that the effects of the anaesthetic would disappear in a very few minutes, Thrykar made haste to gather up his equipment and return to the place where Tes was waiting.

"That puts the first waterfall behind us," he said as he rejoined her. "I'll have to take this stuff down to the ship to work on it—and the sooner it's done, the better. Coming?"

"I think I'll watch until it recovers," she said. "It shouldn't take long, and—I'd like to be sure we haven't done anything irreparable. Thrykar, why do we have to come here, and go to all this deceitful mummery to *steal* blood from a race that doesn't know what it's all about, when there are any number of intelligent creatures who would donate willingly? That creature down there looks so helpless that I pity it rather in spite of its ugliness."

"I understand how you feel," said Thrykar mildly, following the direction of her gaze and deducing that of her thoughts. "Strictly speaking, a world such as this is an emergency station. You know I tried to get a later vacation period, so that I'd come up for refreshment before we left; but I couldn't manage it. If we'd waited at home

until I was finished, we might as well have stayed there—there wouldn't have been time enough left to see anything of Blahn after we got there. There was nothing to do but stop en route, and this was the only place for that. If we'd taken a mainliner, instead of our own machine, we could have reached Blahn in time for treatment, or even received it on board; but I didn't want that any more than you did. I know this business isn't too pleasant for a civilized being, but I assure you that they are not harmed by it. Look!"

He pointed downwards. Jackie was sitting up again, wearing a puzzled expression which, of course, was lost on the witnesses. He was a healthy and extremely active youngster, so it was not the first time in his life he had fallen asleep during the daytime; but he had never before done so with a block of stone under him. He didn't puzzle over it long; he was feeling cold, and the other boys must be some distance ahead of him by now—he dressed hastily, looked for and finally found the books which Jimmy had neglected to bring with his clothes, and ran off up the road.

Tes watched him go with a feeling of relief for which she was unable to account. As soon as he was out of sight, Thrykar picked up the gas cylinders and equipment case, made sure the latter was sealed water-tight, and began once more to struggle down the hill with the load. He refused Tes' assistance, so she, unburdened, saved herself the climb by slipping over the edge of the pit. She was in the tiny galley preparing food by the time Thrykar came aboard; she brought him some within a few minutes and remained in the laboratory to watch what he was doing.

He had transferred the sample of blood to a small, narrow-necked flask, which was surrounded by a heating pad set for what the book claimed to be the human blood temperature. The liquid showed no sign of clotting; evidently some inhibiting chemical had been in the hypodermic when the specimen was obtained. Tes watched with interest as Thrykar bent over the flask and permitted a thin stream of his own blood, flowing from a valve in the great vein of his tongue, to mingle with that of the human being. The valve, and the tiny muscles controlling it, were a product of surgery; the biologists of Thrykar's race had not yet succeeded in tampering with their genes sufficiently to produce such a mechanism in the course of normal development. The delicate operation was performed at the same time the individual received his first "refreshment," and was the most unpleasant part of the entire process. Tes, not yet of age, was not looking forward to the change with pleasure.

The flask filled, Thrykar straightened up. His wife looked at the container with interest. "Their blood doesn't look any different from ours," she remarked. "Why this mixing outside?"

"There are differences suff ient

to detect either chemically or by microscope. It is necessary, of course, that there be *some* difference; otherwise there would be no reaction on the part of my own blood. However, when the blood is from two different species, it is best to let the initial reaction take place outside the body. That would be superfluous if my donor was a member of our own race, with merely a differing blood type. If you weren't the same as I, it would have saved us a lot of trouble."

"Why is it that two people who have been treated, like you, are not particularly helpful to each other if they wish to use each other's blood?"

"In an untreated blood stream, there are leucocytes—little, colorless, amoeboid cells which act as scavengers and defenders against invading organisms. The treatment destroys those, or rather, so modifies them that they cease to be independent entities—I speak loosely; of course they are never really independent—and form a single, giant cell whose ramifications extend throughout the body of the owner, and which is in some obscure fashion tied in with, or at least sensitive to, his nervous system. As you know, a treated individual can stop voluntarily the bleeding from a wound, overcome disease and the chemical changes incident to advancing age—in fact, have a control over the bodily functions usually called "involuntary" to a degree which renders him immune to all the more common causes of organic death." One of his tentacles reached out in a caress. "In a year or two you will be old enough for the treatment, and we need no longer fear—separation.

"But to return to your question. The giant leucocyte, after a few months, tends to break up into the original, uncontrollable type; and about half the time, if that process is permitted to reach completion, the new cells no longer act even as inefficient defenders; they attack, instead, and the victim dies of leukemia. The addition to the blood stream of white cells from another type of blood usually halts the breakdown—it's as though the great cell were intelligent, and realized it had to remain united to keep its place from being usurped; and in the few cases where this fails, at least the leukemia is always prevented."

"I knew most of that," replied Tes, "but not the leukemia danger. I suppose that slight risk is acceptable, in view of the added longevity. How long does that blood mixture of yours have to stand, before you can use it?"

"About four hours is best, I understand, though the precise time is not too important. I'll take this shot before we go to bed, let it react in me overnight, and tomorrow we'll catch another human being, get a full donation, and—then we can start enjoying our vacation."

Jackie Wade ran up the road, still hoping to catch up with his brother. He knew he had fallen asleep, but was sure it had been for only a moment; Jim couldn't be more than

five minutes ahead of him. He had not the slightest suspicion of what had happened during that brief doze; he had lost as much blood before, in the minor accidents that form a normal part of an active boy's existence. His throat did itch slightly, but he was hardened to the activities of the mosquito family and its relatives, and his only reaction to the sensation was mild annoyance.

As he had hoped, he caught the others before they reached his home, though the margin was narrow enough. Jim looked back as he heard his brother's running footsteps, and stopped to wait for him; the other boys waved farewell and went on. Jackie reached his brother's side and dropped to a walk, panting.

"What took you so long?" asked Jim. "I bet you went swimming again!" He glared down at the younger boy.

"Honest, I didn't," gasped Jackie. "I was just comin' on slowly—thinking."

"When did you start thinking, squirt?" An exploratory hand brushed over his hair. "I guess you didn't at that; it's almost as dry as mine. We'd both better stay outside a while longer. Here, drop my books on the porch and find out what time it is."

Jackie nodded, took the books as they turned in at the gate, and ran around to the small rear porch, where he dropped them. Looking in through the kitchen window, he ascertained that it was a few minutes after four; then he jumped down the steps and tore after his brother. Together, they managed to fill the hour and a half before supper with some of the work which they were supposed to have done earlier in the day; and by the time their mother rang the cow bell from the kitchen door, hair and undershirts were dry. The boys washed at the pump, and clattered indoors to eat. No embarrassing questions were asked at the meal, and the Wade offspring decided they were safe this time.

Undressing in their small room that night, Jackie said as much. "How often do you think we can get away with it, Jim? It's so close to the road, I'm always thinking someone will hear us as they go by. Why don't they like us to swim there, anyway? We can swim as well as anyone."

"I suppose they figure if we did get drowned they'd have an awful time getting us out; they say it's over a hundred feet deep," responded the older boy, somewhat absently.

Jackie looked up sharply at his tone. Jim was carefully removing a sock and exposing a rather ugly scrape which obviously had been fresh when the sock was donned. Jackie came over to examine it. "How did you do that?" he asked.

"Hit my foot against the rock the first time I dived. It's a little bit sore," replied Jim.

"Hadn't we better have Mother put iodine on it?"

"Then how do I explain where I got it, sap? Go get the iodine

yourself and I'll put it on; but don't let them see you get it."

Jackie nodded, and ran barefooted downstairs to the kitchen. He found the brown bottle without difficulty, brought it upstairs, watched Jim's rather sketchy application of the antiseptic, and returned the bottle to its place. When he returned from the second trip Jim was in bed; so he blew out the lamp without speaking and crawled under his own blankets.

The next morning was bright and almost clear; but a few thin cirrus clouds implied the possibility of another change in the weather. The boys, strolling down the road toward school, recognized the signs; they prompted a remark from Jackie as they passed the second quarry.

"I bet the middle of a rainstorm would be a good time to go swimming there. No one would be around, and you'd have a good excuse for being wet."

"You'd probably break your neck on the rocks," replied his brother. "They're bad enough when it's dry." Jim's foot was bothering him a little, and his attitude toward the quarry was a rather negative one. He had managed to conceal his trouble from their mother, but now he was limping slightly. They had already fallen behind the other boys, who had met them at the Wade gate, and there began to be a serious prospect of their being late for school. Jim realized this as they entered the town, and with an effort increased his pace; they managed to get to their rooms with two or three minutes to spare, to Jim's relief. He had been foreseeing the need for a written excuse, which might have been difficult to provide.

When they met at lunch time, Jim refused to discuss his foot, and even Jackie began to worry about the situation. He knew his elder brother would not lie about his means of acquiring the injury, and it seemed very likely that the question was going to arise. After school, there was no doubt of it. Jimmy insisted that his brother not wait for him, but go home and stay out of the way until he had faced the authorities; Jackie was willing to avoid the house, but wanted to keep with Jim until they got there. The older boy's personality triumphed, and Jackie went on with the main crowd, while James limped on behind.

They did not swim, that day. The older boys had determined to play higher up the mountain side, and the younger ones trailed along. They spent a riotous afternoon, with little thought to passage of time; and Jackie heard the supper bell ring when he was a hundred yards from the house. He took to his heels, paused briefly at the pump, burst into the kitchen, recovered his poise, and proceeded more sedately to the dining room. His mother looked up as he entered, and asked quietly, "Where's Jimmy?"

That morning, as on the previous day, Thrykar had made careful count of the number of human be-

ings passing the quarry. Although only one automobile had passed the second day, the number of pedestrians had tallied three times—fifteen people had walked to town both mornings; two had walked back in the afternoon, and thirteen had paused to swim. He concluded that those fifteen could be counted on as regular customers, when he laid his plans for the second afternoon.

This time, he took up his station very near the road, concealed as best he could behind bushes. Tes was at his station of the day before, ready to give him warning of people approaching. He was not counting on a lone swimmer remaining behind at the quarry; he hoped to snatch one of the passersby from the road itself.

In consequence, he was more than pleased to see that the human beings did not stop to swim; the first group to pass consisted of twelve, whom he rightly assumed to be most of the previous day's swimmers, and the second was the pair of girls, which Thrykar, of course, was unable to recognize as such. There was one to go; and, though it seemed too good to be true, there was every chance that that one would pass alone.

He did. Tes signaled his approach, and Thrykar, not waiting for anything more, started blowing a bubble. The wind was against him today; he had to make a much larger one, of heavier material, and "anchor" it to the middle of the road. It was more visible, in consequence, than the other had been; but he placed it in the shadow of a tree. Jimmy might not have seen it even had he been less preoccupied. As it was, he almost missed it; Thrykar had time to lay but one trap, which he placed at the center of the road; and Jimmy, from long-established habit, walked on the left. In consequence, he was downwind from the thing; and when it ruptured at his grazing touch, the alien had no reason to be dissatisfied with the result.

The boy hit the ground before Thrykar could catch him, but there were no visible marks to suggest injury to his head when the trapper examined him. Thrykar picked up the unconscious form with an effort, collected the books which had fallen from its hand, and staggered back to the place where he had concealed the rest of his equipment.

This was not the place from which he had been watching; there was more equipment this time, the operation would take longer, and it would have been foolhardy to work so close to the road. He had found another space between large, discarded granite blocks about midway between road and quarry; and this he made his operating room.

Before going to work, he applied an extra dose of the anaesthetic directly to the boy's nostrils; and he laid the cylinder containing the substance close at hand. He uncased a much larger needle, connected by transparent, flexible tubing to a small jar graduated for volumetric measure; and, not trusting his memory, he laid the book

beside it, open to the page which gave the quantity of blood that might safely be removed from a human being—a quantity determined long before by experiment.

As he had done the day before, he swabbed the unprotected throat with alcohol, and inserted the needle; a tiny rubberlike bulb, equipped with a one-way valve, attached to the jar, provided the gentle suction needed, and the container slowly filled to the indicated graduation. Thrykar promptly stopped pumping, extracted the needle, and sealed the puncture as before. Then, before the blood had time to cool appreciably, he removed a small stopper from the jar, inserted his slender tongue, and spent the next two minutes absorbing the liquid into his own circulatory system.

That accomplished, he quickly replaced the apparatus in its case. Then he exerted himself to pick up Jimmy's body and carry it back to the road, at the point where the boy had fallen. There he laid him, face down, as nearly as he could recall in the attitude in which he had collapsed; the books were replaced near his left hand, and after a few minutes' search the alien found a fair-sized fragment of granite, which he placed near the boy's foot to serve as a reason for falling. He considered placing another under the head to account for the loss of consciousness, but couldn't bring himself to provide the necessary additional bruise.

Looking around carefully to make sure none of the human being's property was unreasonably far from the body, Thrykar returned to his watching place and set himself to await the boy's return to consciousness. He had no fears himself for the subject's health, but he remembered Tes' reaction the day before, and wanted to be able to reassure her.

He lay motionless, watching. He was beginning to feel restless, and could tell that he was running a mild fever—the normal result of the refresher reaction. He would be a trifle below par for the rest of the day. That was not worrying him seriously; he could rest until blackness fell, and as soon as that desirable event had occurred, they could be out and away.

He did feel a little impatient with his subject, who was taking a long time to regain consciousness. Of course, the creature had received a far heavier dose of anaesthetic than had the other, and had lost more blood; it might be a little longer in recuperating, on that score; but he had occupied fully ten minutes with the operation and stage-setting, which was about twice as long as the total period of unconsciousness of yesterday's subject.

His patience wore thinner in the additional ten minutes that elapsed before Jimmy Wade began to stir. His first motion attracted the alien's wandering attention, and Thrykar gathered himself together preparatory to leaving. Jimmy moaned a little, stirred again, and suddenly rolled over on his back. After a moment his eyes opened, to stare blankly at the overshadowing tree; then he rolled over again, this time

obviously under conscious control, and started to get to his feet. Thrykar, behind his concealing bush, did likewise. He was the only one to complete the movement. The boy got as far as his hands and knees, and was starting to get one foot under him, when Thrykar saw the small body go limp as though it had received a second shot of gas, and slump back into a huddled heap on the road.

Thrykar stood frozen for a moment, as though he expected to be similarly stricken; and even when he relaxed, he kept both eyes fixed on the inert form for fully half a minute. Then, heedless of the risk of being seen should the creature regain its senses, he rushed out on the road and bent over the body, simultaneously tapping out an urgent call to Tes. Once more he picked Jimmy up, feeling as though his tentacles were about to come out at the roots, and bore him carefully back to the scene of the operation.

His emotions were almost indescribable. To say that he felt criminally guilty in causing serious injury to a sensitive being would not be strictly true; although he had an intellectual realization that human beings were social creatures in a plane comparable to that of his own race, he could not sympathize with them in the etymologically correct sense of the word. At the same time, he was profoundly shocked at what he had done; and he experienced an even deeper feeling of pity than had Tes the day before.

With careful tentacles he opened the loose shirt, and felt for the heart he had located the day before. It was still beating, but fully twice as rapidly as it should have been; and so weakly that for a moment Thrykar could not find it. The chest was rising and falling slightly, in slow, shallow breaths. A man would have detected at once the pallor underlying the tan on the boy's face, but it was unnoticeable to the alien.

Tes arrived and bent over the pair, as her husband performed the examination. Thrykar told her what had happened in a few words, without looking up. She gave a single word of understanding, and let a tentacle slide gently across Jimmie's forehead.

"What can you do?" she asked at last.

"Nothing, here. We'll have to get it down to the ship somehow. I'm afraid to take it under water—none of them went more than a few feet below the surface yesterday, and none stayed down for more than a few seconds. I hate to do it, but we'll have to bring the ship up in broad daylight. I'll stay there; you go down, cast off, and bring the ship over to this side of the pit. Raise it just far enough to bring the upper hatch out of the water. I'll keep this communicator, and when you are ready to come up call me to make sure it's safe."

Tes whirled and made for the quarry without question or argument; a few seconds later Thrykar heard the faint splash as she hurled herself into the water. She must

have worked rapidly; a bare five minutes later Thrykar's communicator began to click, and when he responded, the curved upper hull of the spaceship appeared immediately at the near edge of the quarry. Thrykar picked up the boy once more, carried him to the water's edge, eased him in and followed, holding the head well above the surface. He swam the few feet necessary, found the climbing niches in the hull with his own appendages, crawled up the shallow curve of metal, and handed the limp form in to Tes, who was standing below the hatch. She almost fell as the weight came upon her, but Thrykar had not entirely released his hold, and no damage resulted. A few moments later Jimmy was stretched on a metal table in a room adjacent to the control chamber, and the ship was lying at the bottom of the quarry.

Tes had to go out once more for the equipment Thrykar had left above, which included the all-important book. She took only a few minutes, and reported that there was no sign of any other human being.

Thrykar seized the book, although he had already practically memorized the section dealing with Earth and its natives. He had already set the room thermostat at human blood temperature for safety's sake, and had the air not been already saturated with moisture Jimmy's clothes would have dried very quickly. As it was, he was at least free from chill. The chemist checked as quickly as possible the proper values for respiration rate and frequency of heart beat, and sought for information on symptoms of excessive exsanguination; but he was unable to find the last. His original opinion about heart beat and breathing was confirmed, however; the subject's pulse was much too rapid and his breathing slow and shallow.

There was only one logical cause, book or no book, symptoms or no symptoms. The only source of organic disturbance of which Thrykar had any knowledge was his own removal of the creature's blood. It was too late to do anything about that. The extra dose of gas might be a contributing factor, but the worried chemist doubted it, having seen the negligible effects of the stuff on the human organism the day before.

"Why does that blasted handbook have to be right often enough to make me believe it, and then, when I trust it on something delicate, turn so horribly wrong?" he asked aloud. "I would almost believe I was on the wrong planet, from what it says of the cultural level of this race; then it describes their physical make-up, and I *know* it's right; then I trust it for the right amount of blood to take, and—this. What's wrong?"

"What does it say about their physical structure?" asked Tes softly. "I know it is fantastically unlikely, but we *might* have the wrong reference."

"If that's the case, we're hopelessly lost," replied her husband.

"I know of no other race sufficiently like this in physical structure to be mistaken for it for a single moment. Look—there are close-ups of some of the most positive features. Take the auditory organ—could that be duplicated by chance in another face? And here—a table giving all the stuff I've been using: standard blood temperature, coloration, shape, height, representative weights . . . Tes!"

"What is wrong?"

"Look at those sizes and weights! I couldn't have moved a body that bulky a single inch, let alone carry one twenty yards! You had the right idea; it *is* the wrong race . . . or . . . or else—"

"Or else," said Tes softly but positively. "It is the right planet, the right race, and the right reference. Those values refer to adult members of that race; we took as a donor an immature member—a child."

Thrykar slowly gestured agreement, inwardly grateful for her use of the plural pronoun. "I'm afraid you must be right. I took blood up to the limit of tolerance of an adult, with a reasonable safety margin; this specimen can't be half grown. Yesterday's must have been still younger. How could I possibly have been so unobservant? No wonder it collapsed in this fashion I hope and pray the collapse may not be permanent—by the way, Tes, could you make some sort of blindfold that will cover its eyes without injuring them? They seem deeply enough set to make that a fairly simple job. If it does recover consciousness, there are still laws which should not be broken."

"You could not be blamed for the mistake, anyway," added Tes, comfortingly. "This creature is as large as any we have seen in the open; and who would have thought that children would have been permitted to run freely so far from adult supervision?" She turned away in search of some opaque fabric as she spoke.

"The question is not of blame, but of repairing my error," replied Thrykar. "I can only do my best; but that I certainly will do." He turned back to book, boy, and laboratory.

One thing was extremely clear: the lost blood must be made up in some fashion. Direct transfusion was impossible; the creature's body must do the work. Given time and material, it was probably capable of doing so; but Thrykar was horribly afraid that time would be lacking, and he had no means of learning what materials were usable and acceptable to those digestive organs. One thing he was sure would do no chemical harm—water; and he had almost started to pour some down the creature's throat when he recalled that he had heard these beings speak with their mouths, and that there must consequently be a cross-connection of some sort between the alimentary and pulmonary passages. If it was completely automatic, well and good; but it might not be, and there was in consequence a definite risk of strangling the child. He con-

sidered direct intravenous injection of sterile water, but this chemical knowledge saved him from that blunder.

Tes designed and applied a simple blindfold after that, at Thrykar's direction, she made periodic tests of the subject's blood temperature, pulse, and respiration. That left her husband free to think and read, in the forlorn hope of finding something that would enable him to take positive action of some sort. Simply sitting and watching the helpless little creature die before his eyes was as impossible for him as for any human being with a heart softer than flint.

Unquestionably it could have used some form of sugar; perhaps dextrose, such as Thrykar himself could digest—perhaps levulose or fructose or even starch. That was something that Thrykar could have learned for himself, even though the book contained no information on the matter; for he was a chemist, and a good one.

But he didn't dare take another blood sample from those veins, even for a test. And he didn't dare resort to trial and error; there would probably be only a single error.

A saliva test would have given him the answer, had he dreamt that an important digestive juice could be found so high in any creature's alimentary canal. He didn't; and the afternoon passed at a funereal tempo, with the faint breathing of the victim of his carelessness sounding in his too-keen ears.

It must have been about sunset when Tes spoke to him.

"Thrykar, it's changing a little. The heart seems stronger, though it's still very fast; and the blood temperature has gone up several degrees. Maybe it will recover without help."

The chemist whirled toward the table. "Gone up?" he exclaimed. "It was about where it should be before. If that thing is running a fever—" He did not finish the sentence, but checked Tes' findings himself. They were correct; and looking again at the figures in the book, he lost all doubt that the creature was suffering from a fever which would have been dangerous to a member of Thrykar's own race and was probably no less so to his. He stood motionless beside the metal table, and thought still more furiously.

What had caused the fever? Certainly not loss of blood—not directly, at least. Had the creature been suffering from some disease already? Quite possible, but no way to make sure. An organic tendency peculiar to the race, resulting from lowered blood pressure, prolonged unconsciousness, or similar unlikely causes? Again, no way to prove it. A previously acquired injury? That, at least, gave hope of providing evidence. He had noted no signs of physical disrepair during the few moments he had seen the creature conscious, but it was more or less covered with artificial fabric which might well have concealed them. The exposed portion of the skin showed nothing—or did it? Thrykar looked more closely at the well-tanned legs, left bare from ankle to

just below the knee by the corduroy knickers.

One—the right—was perceptibly larger than its fellow; and touching the brown skin, Thrykar found that it was noticeably hotter. With clumsy haste he unlaced and removed the sneakers, and peeled off the socks; and knew he had the source of the trouble. On the right foot, at the joint of the great toe, was an area from which the skin appeared to have been scraped. All around this the flesh was an angry crimson; and the whole foot was swollen to an extent that made Thrykar wonder how he had managed to get the shoe off. The swelling extended up the leg, in lesser degree, almost to the knee; the positions of the veins in foot and ankle were marked by red streaks.

Ignorant as he was of human physiology, Thrykar could see that he had a bad case of infection on his hands; taken in connection with the fever, it was probably blood poisoning. And, even more than before, there was nothing he could do about it.

He was right, of course, on all counts. Jimmy, in replacing his sock over the scrape the day before, had assured himself of trouble; the iodine had come far too late. By the next morning a battle royal was raging in the neighborhood of the injury. His healthy blood had been marshaling its forces all night and day, and struggling to beat back the organisms that had won a bridgehead in his body; it might possibly have won unaided had nothing further occurred; but the abrupt destruction of his powers of resistance by the removal of nearly half a liter of blood had given the balance a heavy thrust in the wrong direction. James Wade was an extremely ill young man.

Tes, looking on as her husband uncovered the injured foot, realized as clearly as he the seriousness of the situation. The fear that she had been holding at bay for hours—an emotion composed partly of the purely selfish terror that they might do something for which the law could punish them, but more of an honest pity for the helpless little being which had unwittingly aided her husband—welled up and sought expression; Thrykar's next words set off the explosion.

"Thank goodness for this!" was what he said, beyond any possibility of doubt; and his wife whirled on him.

"What can you mean? You find yet another injury you've caused this poor thing, and you sound *glad* of it!"

Thrykar gave a negative flip of his great fins. "I'm sorry; of course my words would give that impression. But that was not what I meant. I am powerless to help the creature, and have been from the first, though I stubbornly refused to admit the fact to myself. This discovery has at least opened my eyes.

"I wanted to treat it myself before, because of the law against making our presence known; and I wasted my time trying to figure out means of doing so. I was attack-

ing the wrong problem. It is not to cure this being ourselves, *so that* our presence will remain unsuspected; it is to get it to the care of its own kind, without at the same time betraying the secret. I suppose I assumed, without thinking, that the latter problem was insoluble."

"But how can you know that the human race has a medical science competent to deal with this problem?" asked Tes. "According to the handbook, their science is practically nonexistent; they're still in the age of superstition. Now that I think of it, I once read a story that was supposed to take place on Earth, and the men treated some member of our own race on the assumption that he was an evil, supernatural being. Whoever wrote the story must have had access to information about the planet." Thrykar smiled for the first time in hours as he answered.

"Probably the same information used by whoever compiled the Earth digest in this handbook. Tes, my dear, can't you see that whoever investigated this world couldn't have stirred a mile from the spot he landed—and must have landed in a very primitive spot. He made no mention of electrical apparatus, metallurgical development, aircraft—all the things we've seen since we got here. Mankind *must* be in the age of scientific development. That investigator was criminally lax. If it weren't for the letter of the law, I'd reveal myself to a human being right now.

"All sciences tend to progress in relation to each other; and I don't believe that a race capable of creating the flying machine we saw two days ago would be lacking in the medical skill to treat the case we have here. We will figure out a means to get this being into the hands of its own people again, and that will solve the problem. We should be able to get away some time tonight."

Tes felt a great weight roll from her mind. There seemed little doubt that the program her husband had outlined was practical.

"Just how do you plan to approach a man, or group of them, carrying an injured member of their own race—a child, at that—and get away not only unharmed, but unobserved?" she asked, from curiosity rather than destructive criticism.

"It should not be difficult. There are several dwelling places not far down the road. I can take the creature, place it in plain sight in front of one of them, then withdraw to a safe distance, and attract attention by throwing stones or starting a fire or something of that sort. It must be dark enough by now; we'll go up right away, and if it isn't we can wait a little while."

It was. It was also raining, though not heavily; the boy's prediction of the morning had been fulfilled. Tes maneuvered the little ship as close as possible to the quarry's edge, while Thrykar once again transferred his burden across the short but unavoidable stretch of water. He pulled it out on dry

or comparatively dry, land, and signaled Tes to close the hatch and submerge. She was to wait for him just below the surface, ready to depart the moment he returned.

That detail attended to, he turned, straightened up, and coiled and uncoiled his tentacles two or three times after the manner of a man flexing his muscles for a severe task. He realized that, in the transportation of a one-hundred-fifteen pound body some three-quarters of a mile, he had taken on a job to which his strength might barely be equal; but the alternative of bringing the ship closer to the town was unthinkable as yet. He bent over, picked Jimmy up, and started toward the road, keeping to the right side of the drive that led to the quarry.

It was even harder than he had expected. His muscles were strained and sore from the unaccustomed exertion earlier in the day; and by the time he was halfway to the road he knew that some other means of transportation would have to be found. He let his supple body curve under its load, and gently eased his burden to the ground.

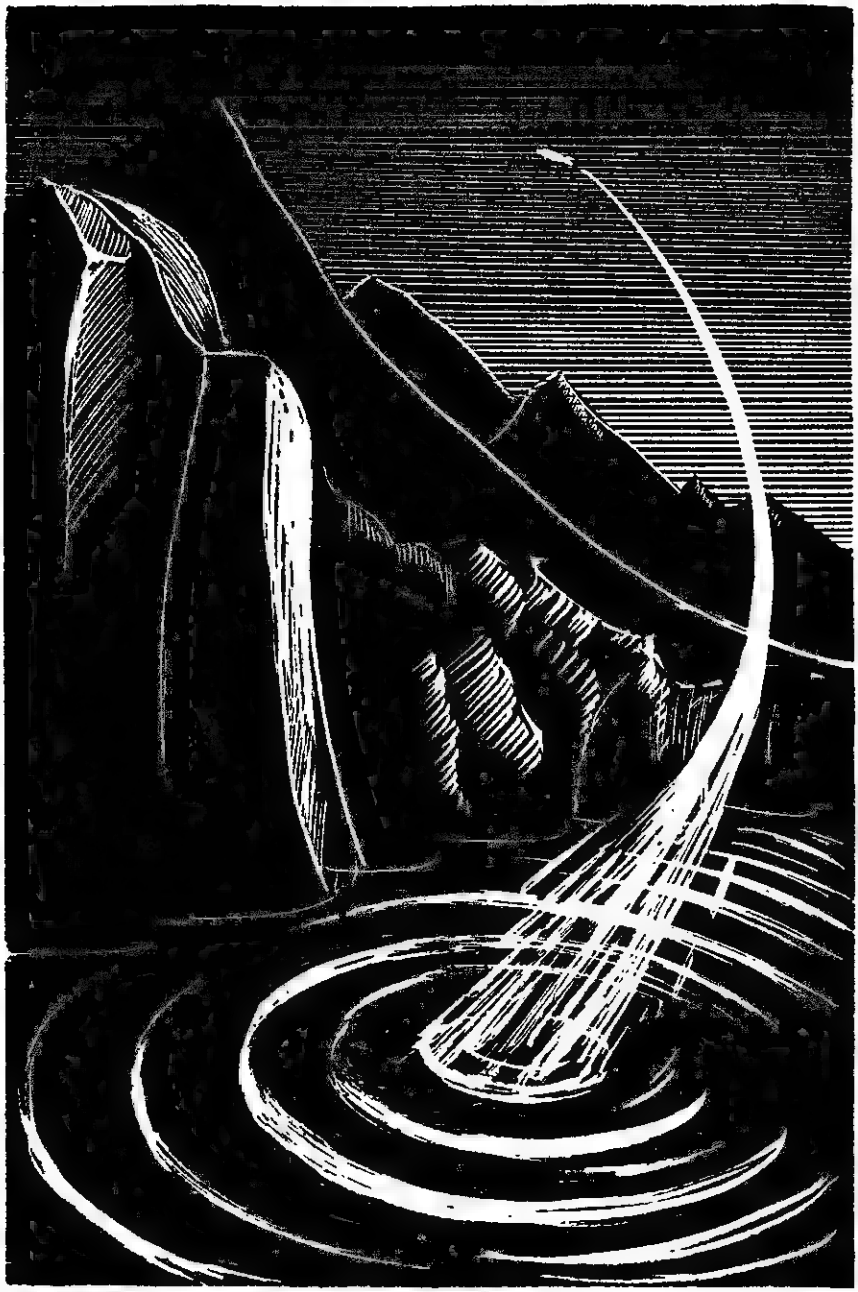
Whether he had grown careless, or the rain had muffled the scuffling sound of approaching human feet, he was never sure; but he was unaware of the fact that he was not alone until the instant a beam of light lanced out of the darkness straight into his eyes, paralyzing him with astonishment and dismay.

Jackie Wade had heard nothing, either; but that may be attributed to Thrykar's unshod feet, the rain, and Jackie's own preoccupation with the question of his brother's whereabouts. He was not yet actually worried, though his parents were beginning to be. Once or twice before, one or the other of the boys had remained at a comrade's home for supper. They were, however, supposed to telephone in such an event, and the rather stringent penalties imposed for failure to do so had made them both rather punctilious in that matter.

Jackie had not told about his brother's sore foot; he had simply offered, after supper, to go looking for him on the chance that he might be at the home of a friend who did not possess a telephone. He had no expectation that Jimmy would be at the quarry; he could think of no reason why he should be; but in passing the drive, he thought it would do no harm to look. Jimmy might have been there, and left some indication of the fact.

He knew the way well enough to dispense with all but occasional blinks of the flashlight he was carrying; so he was almost on top of the dark mass in the drive before he saw it. When he did he stopped, and, without dreaming for a moment that it was more than a pile of brush or something of that sort, left, perhaps, by one of the other boys, turned the beam of his light on it.

He didn't even try to choke back the yell of astonishment and terror that rose to his lips. His gaze flickered over, accepted, and dismissed in one split second the body of his brother stretched on the wet



ground; he stared for a long moment at the object bent over it.

He saw a black, glittering wet body, wide and thick as his own at the upper end, and tapering downwards; a dome-shaped head set on top of the torso without any intermediary neck; great, flat appendages, suggestive in the poor light of wings, spreading from the sides of the body; and a pair of great, staring, wide-set eyes that reflected the light of his flash as redly as do human optics.

That was all he had time to see before Thrykar moved, and he saw none of that very clearly. The alien straightened his flexible body abruptly, at the same time rocking backwards on his short legs away from Jimmy's body; and the muscles in his sinewy, streamlined torso and abdomen did not share any part of the feebleness inherent in his slender tentacles. When he straightened, it was with a snap; he did not merely come erect, but leaped upward and backward out of the cone of light, with his great fins spread wide for all the assistance they could give. He completely cleared the enormous block of stone lying beside the drive, and the sound of his descent on the other side was drowned in Jackie's second and still more heartfelt yell.

For a moment Thrykar lay where he had fallen; then he recognized his surroundings, dark as it was. He was in the space he had used that afternoon for an operating theater; and with that realization he remembered the path among the rocks and bushes which he had used in carrying the boy to the ship. As silently as he could, he crept along it toward the water; but as yet he did not dare signal Tes.

Behind him he heard the voice of the creature who had seen him. It seemed to be calling—"Jimmy! Jimmy! Wake up! What's the matter!"—but Thrykar could not understand the words. What he did understand was the pound of running feet, diminishing along the drive and turning down the road toward the town. Instantly he rapped out an urgent signal to Tes, and abandoning caution made his way as rapidly as possible to the quarry's edge. A faint glow a few feet away marked the hatch in the top of the hull, and he plunged into the water toward it. Thirty seconds later he was inside and at the control board, with the hatch sealed behind him; and without further preamble or delay, he sent the little ship swooping silently upward, into and through the dripping overcast, and out into the void away from Earth.

Jackie, questioned by his father while the doctor was at work, told the full truth to the best of his ability; and was in consequence sincerely grieved at the obvious doubt that greeted his tale. He honestly believed that the thing he had seen crouched over his brother's body had been winged, and had departed by air. The doctor had already noted and commented on the wound in Jim's throat, and the head of the Wade family had been moved to find out what he could about

vampire bats. In consequence, he was doing his best to shake his younger's son's insistence on the fact that he had seen something at least as large as a man. He was not having much luck, and was beginning to lose his temper.

Dr. Envers, entering silently at this stage and listening without comment for several seconds, gleaned the last fact, and was moved to interrupt.

"What's wrong with the lad's story?" he asked. "I haven't heard it myself, but he seems to be sure of what he's saying. Also," looking at the taut, almost tearful face of the boy sitting before him, "he's a bit excited, Jim. I think you'd better let him get to bed, and thrash your question out tomorrow."

"I don't believe his story, because it's impossible," replied Wade. "If you had heard it all, you'd agree with me. And I don't like—"

"It may, as you say, be impossible; but why pick on only one feature to criticize?" He glanced at the open encyclopedia indicated by Wade. "If you're trying to blame Jimmy's throat wound on a vampire bat, forget it. Any animal bite would be as badly infected as that toe, and that one looks as though it had received medical treatment. It's practically healed; it was a clean puncture by something either surgically sterile, or so nearly so that it was unable to offer a serious threat to the boy's health even in his present weak condition. I don't know what made it, and I don't care very much; it's the least of his troubles."

"I told you so!" insisted Jackie. "It wasn't one of your crazy little bats I saw. It was bigger than I am; it looked at me for a minute, and then flew away."

Envers put his hand on the youngster's shoulder, and looked into his eyes for a moment. The face was flushed and the small body trembling with excitement and indignation.

"All right, son," said the doctor gently. "Remember, neither your father nor I have ever heard of such a thing as you describe, and it's only human for him to try to make believe it was something he *does* know about. You forget it for now, and get some sleep; in the morning we'll have a look to find out just what it might have been."

He watched Jackie's face carefully as he spoke, and noted suddenly that a tiny lump, with a minute red dot at the center, was visible on his throat at almost the same point as Jimmy's wound. He stopped talking for a moment to examine it more closely, and Wade stiffened in his chair as he saw the action. Envers, however, made no comment, and sent the boy up to bed without giving the father a chance to resume the argument. Then he sat in thought for several minutes, a half smile on his face. Wade finally interrupted the silence.

"What was that on Jackie's neck?" he asked. "The same sort of thing that—"

"It was *not* like the puncture in Jimmy's throat," replied the doctor

wearily. "If you want a medical opinion, I'd say it was a mosquito bite. If you're trying to connect it with whatever happened to the other boy, forget it; if Jackie knew anything unusual about it, he'd have told you. Remember, he's been trying to put stuffing in a rather unusual story. I'd stop worrying about the whole thing, if I were you; Jimmy will be all right when we get these strep bugs out of his system, and there hasn't been anything wrong with his brother from the first. I know it's perfectly possible to read something dramatic into a couple of insect bites—I read 'Dracula' in my youth, too—but if you start reading it back to me I'm quitting. You're an educated man, Jim, and I only forgive this mental wandering because I know you've had a perfectly justifiable worry about Jimmy."

"But what *did* Jackie see?"

"Again I can offer only a medical opinion; and that is—nothing. It was dark, and he has a normal imagination, which can be pretty colorful in a child."

"But he was so insistent—"

The doctor smiled: "You were getting pretty positive yourself when I walked in, Jim. There's something in human nature that thrives on opposition. I think you'd better follow the prescription I gave for Jackie, and get to bed. You needn't worry about either of them, now." Envers rose to go, and held out his hand. Wade looked doubtful for a moment, then laughed suddenly, got to his feet, shook hands, and went for the doctor's coat.

Like Wade, Tes had a few nagging worries. As Thrykar turned away from the controls, satisfied that the ship was following the radial beam emanating from the broadcaster circling Sol, she voiced them.

"What can you possibly do about that human being who saw you?" she asked. "We lived for three Earth days keyed up to a most unpleasant pitch of excitement, simply because of a law which forbade our making ourselves known to the natives of that planet. Now, when you've done exactly that, you don't seem bothered at all. Are you expecting the creature to pass us off as supernatural visitants, as they are supposed to have accounted for the original surveyors?"

"No, my dear. As I pointed out to you before, that idea is the purest nonsense. Humanity is obviously in a well advanced stage of scientific advancement, and it is unthinkable that they should permit such a theory to satisfy them. No—they know about us, now, and must have been pretty sure since the surveyors' first visit."

"But perhaps they simply disbelieved the individuals who encountered the surveyors, and will similarly discredit the one who saw you."

"How could they do that? Unless you assume that all those who saw us were not only congenital liars but were known to be such by their fellows, and were nevertheless al-

lowed at large. To discredit them any other way would require a line of reasoning too strained to be entertained by a scientifically trained mind. Rationalization of that nature, Tes, is as much a characteristic of primitive peoples as is superstition. I repeat, they know what we are; and they should have been permitted galactic intercourse from the time of the first survey—they cannot have changed much in sixty or seventy years, at least in the state of material progress.

"And that, my dear, is the reason I am not worried about having been seen. I shall report the whole affair to the authorities as soon as we reach Blahn, and I have no doubt that they will follow my recommendation—which will be to send an immediate official party to contact the human race." He smiled momentarily, then grew serious again. "I should like to apologize to that child whose life was risked by my carelessness, and to its parents, who must have been caused serious anxiety; and I imagine I will be able to do so." He turned to his wife.

"Tes, would you like to spend my next vacation on Earth?"

THE END.

THE ANALYTICAL LABORATORY

This month, the results indicate a rather unusual degree of pairing-off—a pairing off that suggests that a fairer way of presenting the results would be to show the thing in terms of pairs. The results were:

July, 1946 issue

Place	Story	Author	Points
1.	Cold Front	Hal Clement	2.48
2.	Trouble	George O. Smith	2.76
3.	Rain Check	Lewis Padgett	3.36
4.	The Blindness	Philip Latham	3.46
5.	Film Library	A. E. van Vogt	4.46
6.	Stability	A. Bertram Chandler	4.63

The fact that, with six stories, the lowest scores were fairly high, and the highest rather low indicates that the run of opinion was strongly scattered. Actually, each story got voted first, and each was voted last by someone

Ah, weeel, I guess nobody can please everybody!

THE EDITOR.

International News Photos

FIG. 1

—through isotope productions—

Figure #1:

The Army authorities have released the first pictures of the Clinton atomic pile, and the mechanical operations necessary to producing and handling the radioactive isotopes that can be produced in it. Briefly, to refresh your memory, the atomic pile "burns" natural uranium, in a chemically pure state. The uranium slugs are loaded into holes in the mass of purified graphite moderator. The fission reaction of U-235 atoms produces high-speed neutrons which would, normally, be absorbed by the U-238 atoms present, thus eliminating the neutrons—and preventing new fission reactions. The presence of the graphite slows down the neutrons, without absorbing them, to a speed too low for them to enter the U-238 nucleus, although they can still enter the U-235 nucleus and so cause new fissions. The interior of the atomic pile is a region of terrific subatomic violence, with high intensities of gamma-ray—X-ray—bombardment, and an "atmosphere" of free neutrons in great quantities. There are, also, various and sundry alpha particles, high-speed electrons, and a few high-speed protons battering about among the carbon atoms of the graphite, the uranium isotopes, and

the various fission-product nuclei.

Any normal substance introduced to this region of atomic hell-fire is bound to undergo drastic changes. Ordinary nitrogen, for instance, under neutron bombardment, becomes radioactive carbon-14, with a half-life of one thousand years. That will be wonderful material for doing biological work. Heretofore, only the 21-minute half-life carbon isotope was available for tracer chemistry.

At the start of the process for manufacturing isotopes, the sample to be bombarded is inserted in a special graphite block. The action of the pile has been "stopped" so that less deadly radiation will escape while the block is being inserted through the shielding wall. Holes 16 and 15 are closed, and plugged; the hole being used will be plugged after the graphite carrier block has been inserted. The atomic pile can never be totally stopped, once it has been started, because the whole mass of the pile is saturated with radioactives produced by the fissioning uranium. The uranium fission can be stopped —by inserting neutron-absorbing cadmium or boron-steel rods—and the level of activity greatly reduced.

Figure #2:

This broader view of the wall of the pile gives some indication of the approximate size of the pile proper, and the thickness of the shielding wall around it. The pile would be, ideally, a sphere, since

that geometrical shape has the maximum volume-per-unit-area of surface. Practical considerations change that to a doorknob shaped affair, which can be constructed more easily. The numbering sequence on the examination and test holes shown seems unintelligible, so the total number of test openings is not known. Presumably there are at least as many off to the left as are visible. Beyond the rightmost hole is a stretch of blank wall.

The walls seen are the outside surfaces of the thick radiation-proof shield, composed of foot after foot of high-density concrete, and, probably, other materials. Inside the neutron, alpha-particle, beta-ray and gamma-ray absorbing shield, but outside the mass of the pile proper, is a thick layer—probably several feet—of graphite blocks, identical with those in the main body of the pile, but containing no uranium. These graphite blocks "reflect" escaping neutrons back to the pile, increasing the pile's efficiency. Presumably the blank wall to the right of the test holes represents the corner where the front shield and the side-wall shield meet. The shield wall thickness must be many feet, certainly more than ten feet of high-density concrete would be needed, even if backed with lead or cast-iron blocks.

The experiment here progressing involves a ray of one type or another emerging from test aperture

FIG. 3

FIG. 4

#20—a small diameter hole—through the shield. After passing the test apparatus, the rest of the radiation beam is blocked by the pile of bricks on the small table. The thickness of the table's blocky legs suggests the nature of the bricks. They're lead.

Figure #3:

The removal of the material put in for radioactivation is a far more involved rite than the original insertion. When the material went in, the atoms were normal, stable matter—"cold." When it comes out, it's "hot"—a deadly brew of exploding, surcharged atoms, loaded with excess nuclear energy which is released in showers of beta-ray particles—the radioactive trade name for high-speed electrons

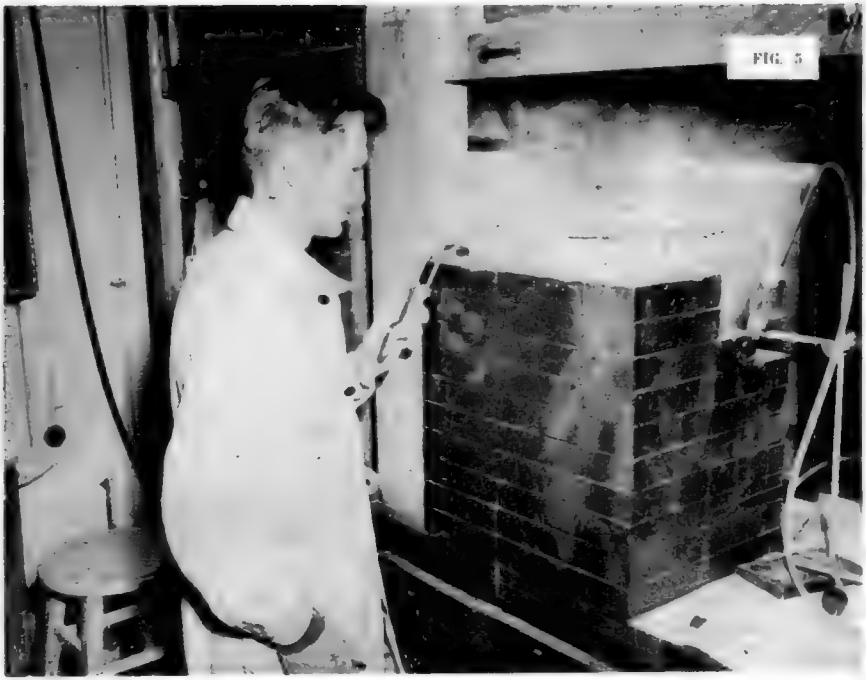
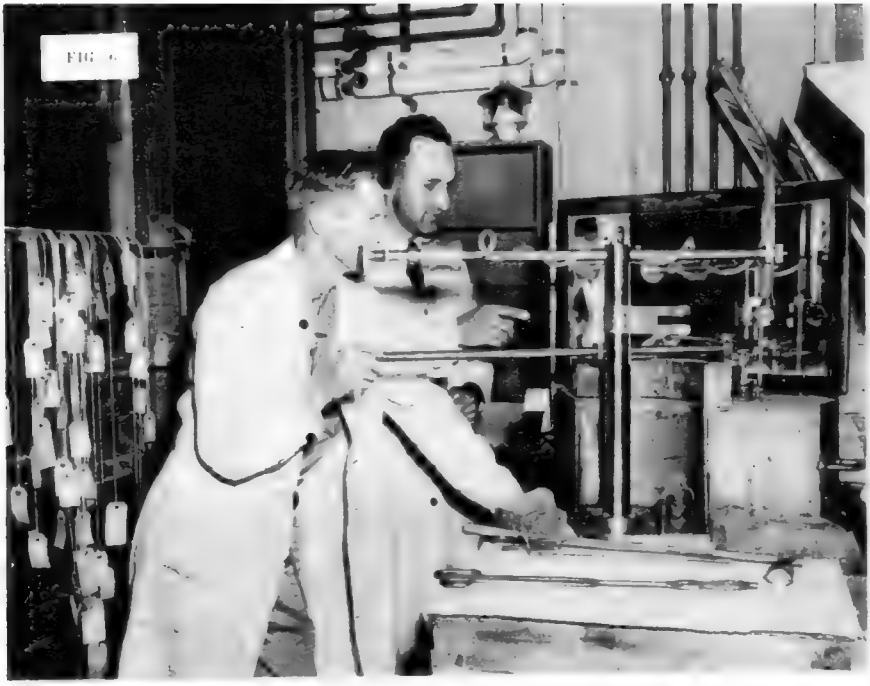


FIG. 5

—and gamma rays—ditto for Xrays. It may have been ordinary barium phosphate when it went in; when it comes out it's death in small bottles. Even the graphite block carrier is loaded with death; the other samples placed in the other holes in the block are surcharged too. A special tool is used to draw the graphite carrier out of the pile into a heavy lead cage; as before the pile has been shut down to minimize radiation from that source. Long-handled tongs are used to withdraw one of the sample tubes. Distance lends protection from the radiation by two effects; any matter absorbs the beta-ray energy very rapidly, and gamma-ray energy slowly. Air helps greatly in discouraging beta-ray damage. The inverse square law works against the gamma rays. And by working fast, the time of exposure to the gamma rays can be reduced. The girl carrying the portable Geiger-counter instrument checks for radiation intensity; if it's too hot the handling methods can be speeded.

Incidentally, it's a fair bet that this is a posed shot to illustrate how the thing is done. Gamma rays aren't good for film either.

The number 13 appears over a test aperture at the left; the pipes running down just beyond it suggest that the wall beyond that point is again blank. This, with other photographs, indicates the total size of the active pile, as apart from its many feet of shielding. It doesn't



look like a satisfactory power plant for an automobile, or a light plane!

Figure #4:

Radioactivity in a sample removed from the pile consists of two types: there will be a contamination of fission-product nuclei driven into it from exploding uranium atoms, and similar high-activity contaminants, and the desired radioactive substances is produced from transmutation of atoms of the sample. The high-activity contaminants are extremely dangerous, but their high rate of activity causes them to disappear in a short time—a matter of hours. Thereafter, the "cooled" sample can be handled with short tongs. Relatively thin shielding—a few bricks of lead—suffices for protection, but a counter is used to make sure that theory checks with fact—that the "hot" isotopes have actually died off and that the few lead bricks are sufficient.

The Army's caption on this photograph states that the process here is the extraction of radioiodine from bombarded tellurium. The chemistry of bombarded tellurium would offer an additional hazard, incidentally; tellurium compounds are among the world's worst odors, and chemists working with it have long, and unfavorably, known of "tellurium breath." The chemist is apt to smell as though he had been eating decayed garlic on skunk steaks.

The two-inch lead bricks, plus the two-inch lead sheathing on the table, stop most gamma rays. The paper covering of the bench will be specially disposed of, to assure that spilled fragments of radio-elements are not left in the laboratory. Each worker wears a special badge containing photographic film, which automatically adds up the total exposure the man experiences during the day.

Figure #5:

The next step upward in order of danger is this "semi-hot" laboratory, where more violently radioactive compounds are handled. Not in the full "hot" category, they emit deadly rays that must be treated with utmost respect. Specially well-ventilated hoods sweep away gases given off, while the long tongs are used for manipulation. A much higher wall of lead bricks is used, and the chemist's whole approach to the job is more cautious.

Figure #6:

This one is hot—decidedly deadly. Getting a sample of something so radioactive that no human being can approach it becomes a neat—and murderous!—problem.

The long-handled manipulator is part of the answer; the most important part, however, involves a very simple law of physics. Light won't turn corners—but it will bounce from a mirror. Gamma rays won't turn corners, either—and they won't bounce from a mirror. By

FIG. 7

using a mirror to see the work of the manipulator beyond the thick lead shield, the work can be carried out. If you've never tried manipulating something you can see only in a mirror, you can't fully appreciate the special training delicate—and infallible!—chemical work by mirror requires. Try drawing a square, then the two diagonals, with a pencil, working only by mirror!

Figure #7:

Clothing, shoes, everything must be checked to make certain that radioactives accidentally picked up are removed. A Geiger counter sniffs the shoes, to see that no radioactives are embedded; notice the painted toes that mark these as laboratory, not street-wear, shoes. Special clothing worn only in the "hot" and "semi-hot" laboratories is specially laundered frequently to keep it free of radioactives. The clothes, like the shoes, must be exchanged when the wearer leaves the radioactive laboratories for either outside, or to enter the "cold"—nonradioactive—chemistry laboratories.

Figure #8:

This is a portable "cave." The container on the truck is practically a single, solid mass of lead in a steel shell; a small drilled hole, perhaps one inch in diameter, in the center of the mass of dense metal, contains the small sample. But the radioactivity of that small sample may exceed a dozenfold the

FIG. 8

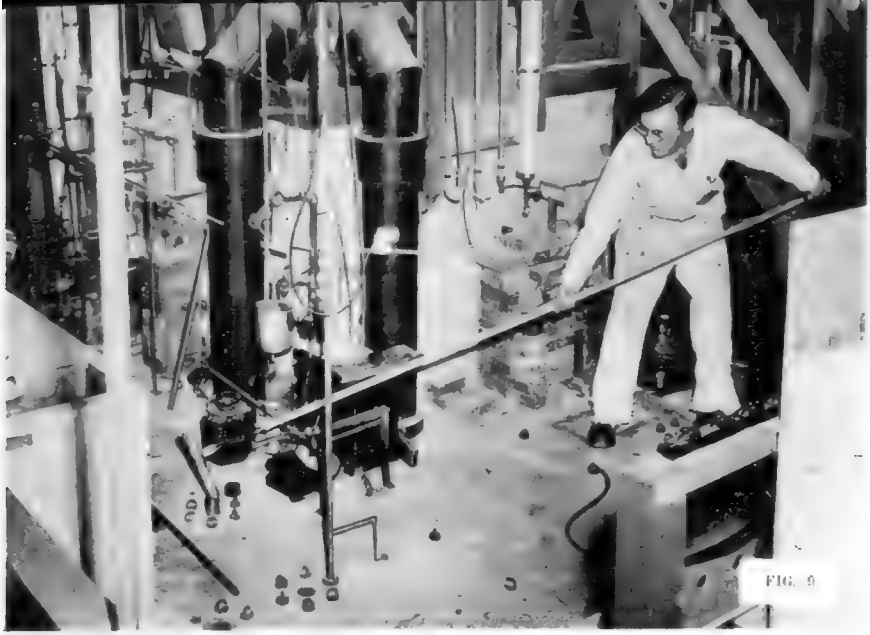


FIG. 9

radioactivity of all the radium refined by Man since the Curies. The portable cave is handled by trucks and cranes; it weighs tons.

The radiation detector is being used to make sure there are no leakages—that the auxiliary lead bricks atop the container are blocking any remnants of escaping gamma rays.

The uniforms are washable; the identification badges contain unexposed film to determine the day's exposure to radiation. To check the findings of the film, one of the "pencils" each man is wearing is a tiny electroscope; if it is discharged, there has been excessive gamma-ray leakage somewhere.

Figure #9:

Some of the radioactives are too horrendously deadly to be handled in the same room with human beings; they must be treated in an entirely different way. For these, there are the "hot labs"—specially designed, remote-control robot laboratories, in essence, wherein, once the deadly ray-emitting samples have been loaded, an entire complex series of chemical operations can be carried out by push-button and rheostat from a different room.

The super-active material is taken from the portable lead-walled container by means of the long pole-clamp, and quickly shot down into the special ray-proof concrete laboratory through the opening in its ceiling. By such a method as this, the first slugs of plutonium-charged uranium, after activation in the atomic pile, must have been analyzed. The uranium metal, virulently active with unstable fission-product atoms, must be processed for chemical extraction of the small amount of plutonium.

In such a "hot-lab" as this, it could be done.

Figure #10:

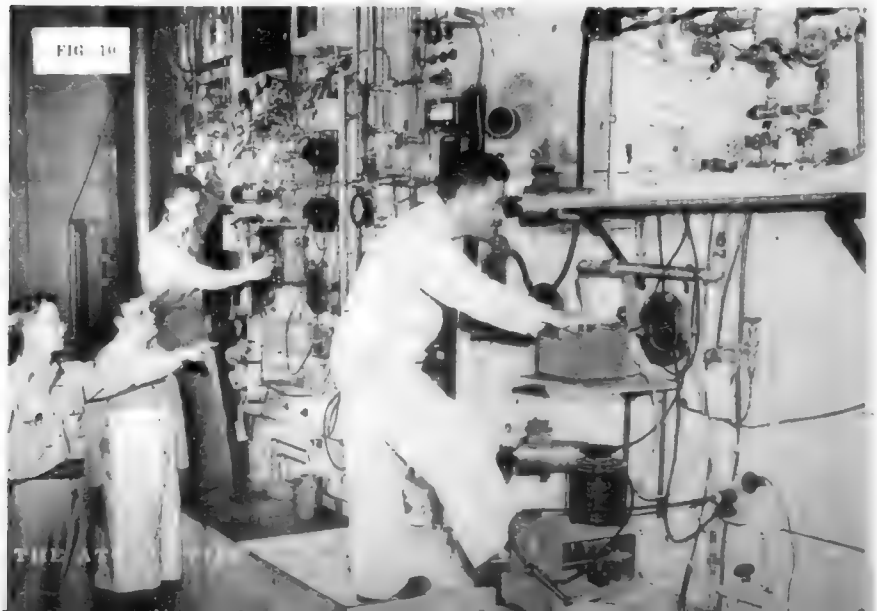
The control panel for the hot-lab is the wall, on the floor below the entrance chute. Now, plutonium is extracted on a mass-production basis by fully automatic mechanisms, not in such hot-labs as this: the present operations are designed to produce the invaluable synthetic radioactive isotopes for medical, biological, and industrial research. Since the desired product of such work is constantly changing—radio-iodine today, radio-carbon tomorrow, radio-sodium or phosphorus next—it must be done by remote control rather than automatic control.

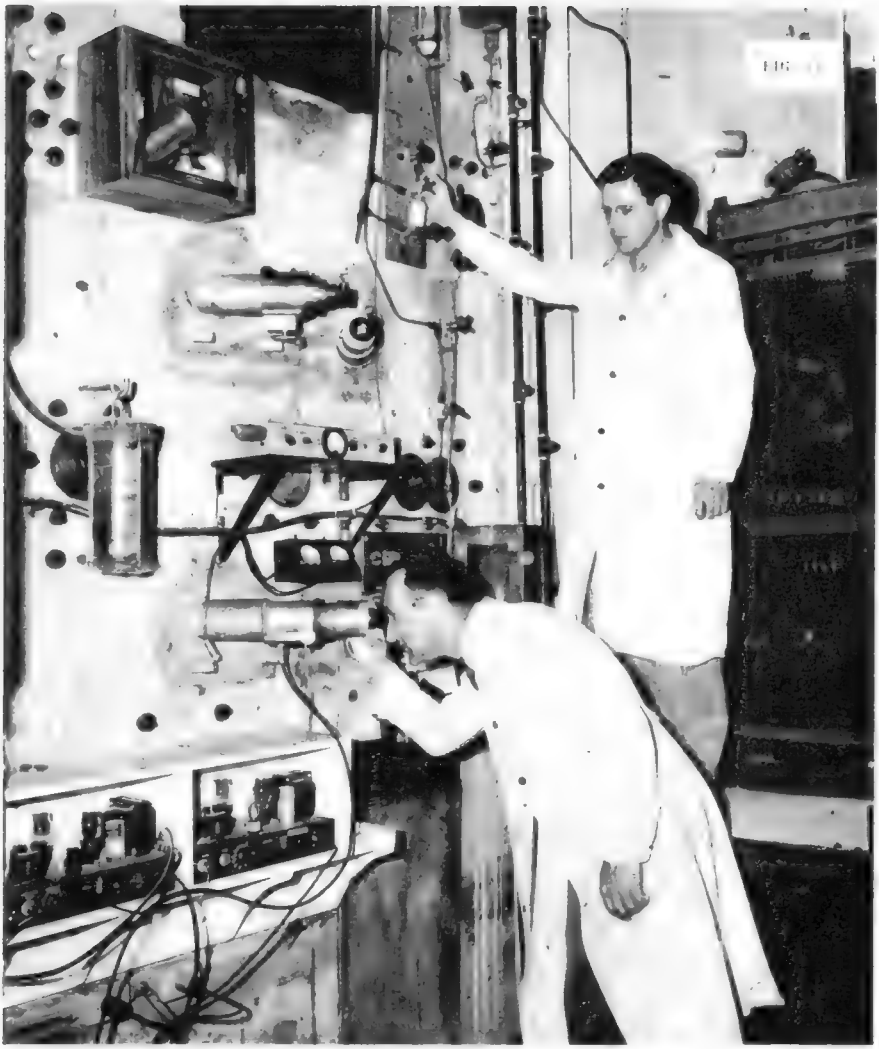
Again, advantage is taken of the fact that light, unlike gamma rays, will reflect from a mirror; it is safe to watch through periscopic devices—or through super-thick lead-glass, since light finds a lead silicate glass just another kind of glass, while gamma rays find it made up to about eighty percent of lead, and as absorbing as an eighty percent lead alloy.

The concrete walls are two feet thick—and they're not ordinary concrete, either. No data is given, but whereas ordinary cement is calcium sulphate, composed of relatively light, low-absorption atoms, it might be advantageous to add some heavy-element mineral content.

Figure #11:

Due to the thickness of the walls, and the necessary length of the periscope light-path, the eye of an observer would be a considerable optical distance from the reaction vessel, making close observation difficult. Hence the telescopic type periscopes. The radio-amplifier type apparatus in the foreground presumably is part of a Geiger-





counter mechanism.

Dr. Waldo Cohn, at the eyepiece of the periscope, is in charge of radioactive isotope preparation at Clinton Laboratories—one of the world's foremost atomic production engineers. Dr. Edward Tompkins, with him, is the designer of the fission product separation units—the full-automatic units that separate the uranium slugs from the pile into uranium, fission products, and plutonium—at the Clinton Laboratories.

Figure #12:

The job of working chemical reactions by remote control is some-

what like assembling a watch while wearing boxing gloves. It could be done if you had to, and had everything planned just right beforehand. The difficulty in the radioisotope work is that any slips are going to be more than slightly embarrassing. A spilled solution, for instance, can't be mopped up; the room isn't equipped with automatic mops, and the stuff would be so fantastically dangerous that no human being could do it. It would simply have to be left alone until the natural radioactive decay had cleared the danger.

If the reaction doesn't go quite as planned, and a new reagent, not previously arranged in the hot-lab cubicle is desired, it's regrettable, but irreparable. No one can take it in until the radioactives have been disposed of safely.

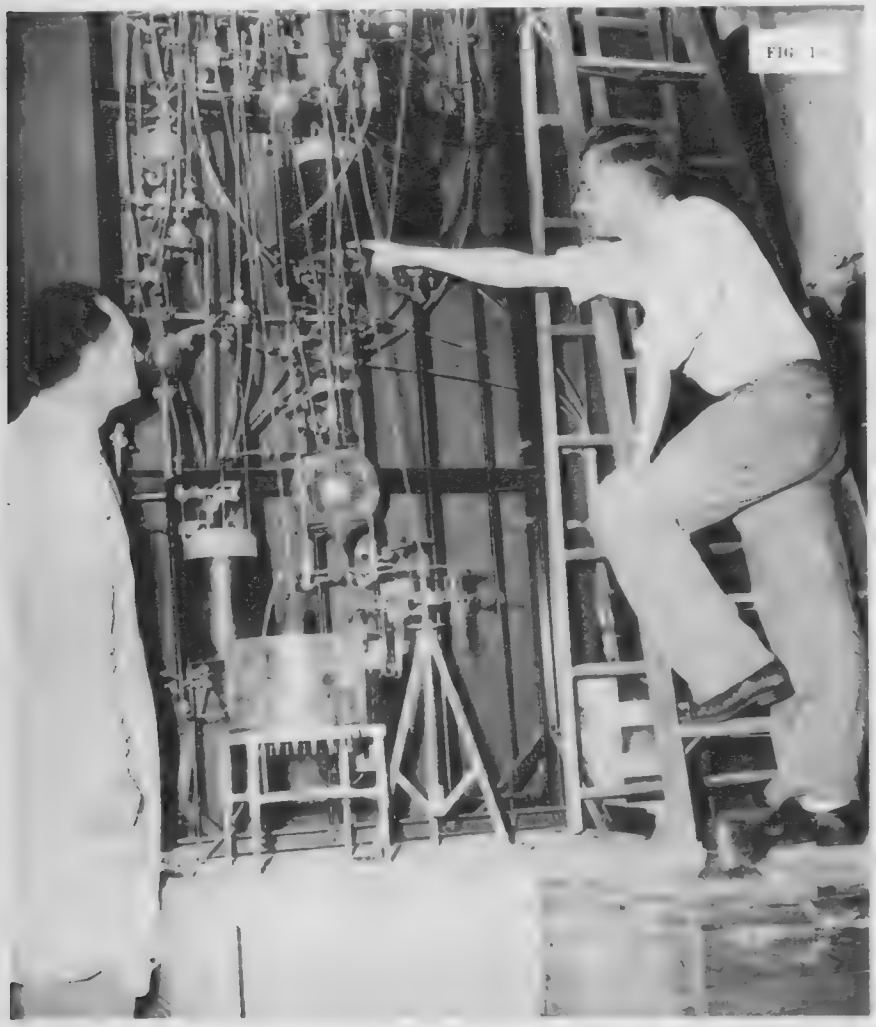
Men engaged in manipulations of this complex apparatus are apt to be a bit too busy to keep complete notes, but since it is all remote-control anyway, it is inherently ideally adapted to automatic recording instruments.

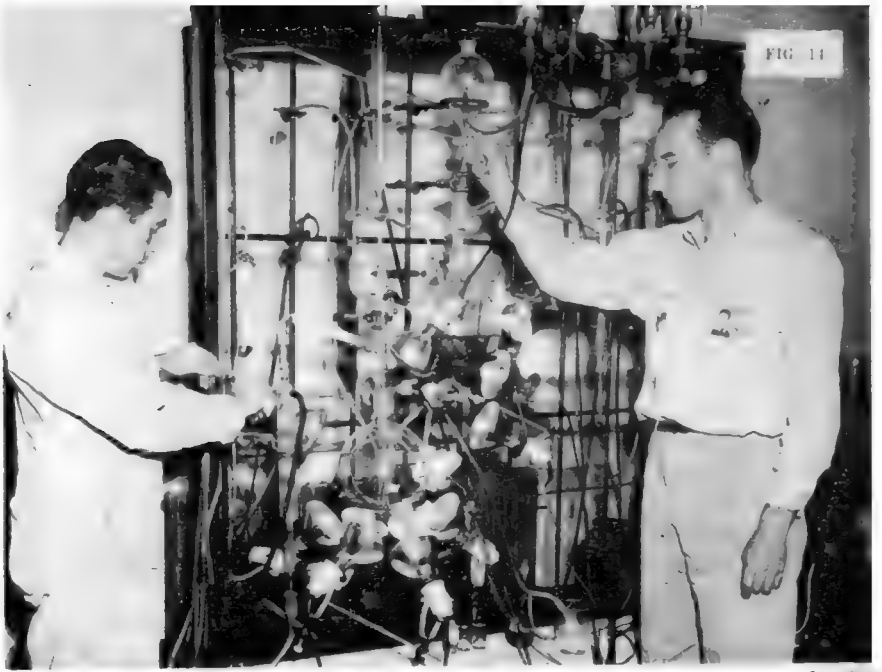
Figure #13:

Planning the equipment for any given series of reactions has to be done—and done right—before the radioactive material is put into the system. This set-up is designed to separate certain of the supercharged, extra-potent fission products. All transfer of solutions from one vessel to another, additions of reactants, and motion of parts must be controlled from outside. Sometimes that probably

leads to working out some rather unorthodox systems of separation. Normally, if a chemist wants to separate barium from a mixed solution of other substances, he does it by precipitating the barium as an insoluble compound, and filtering it out. That's simple, when you can get hold of the filter paper, but may get difficult if it's on the other side of a ray-proof concrete wall. In that case, you might prefer to precipitate everything but the barium, because a solution is conveniently mobile.

When working on the chemistry of unknown elements, such as #93, 94, 95 and 96, it must be a little difficult to plan just precisely what reactions, and what reagents,





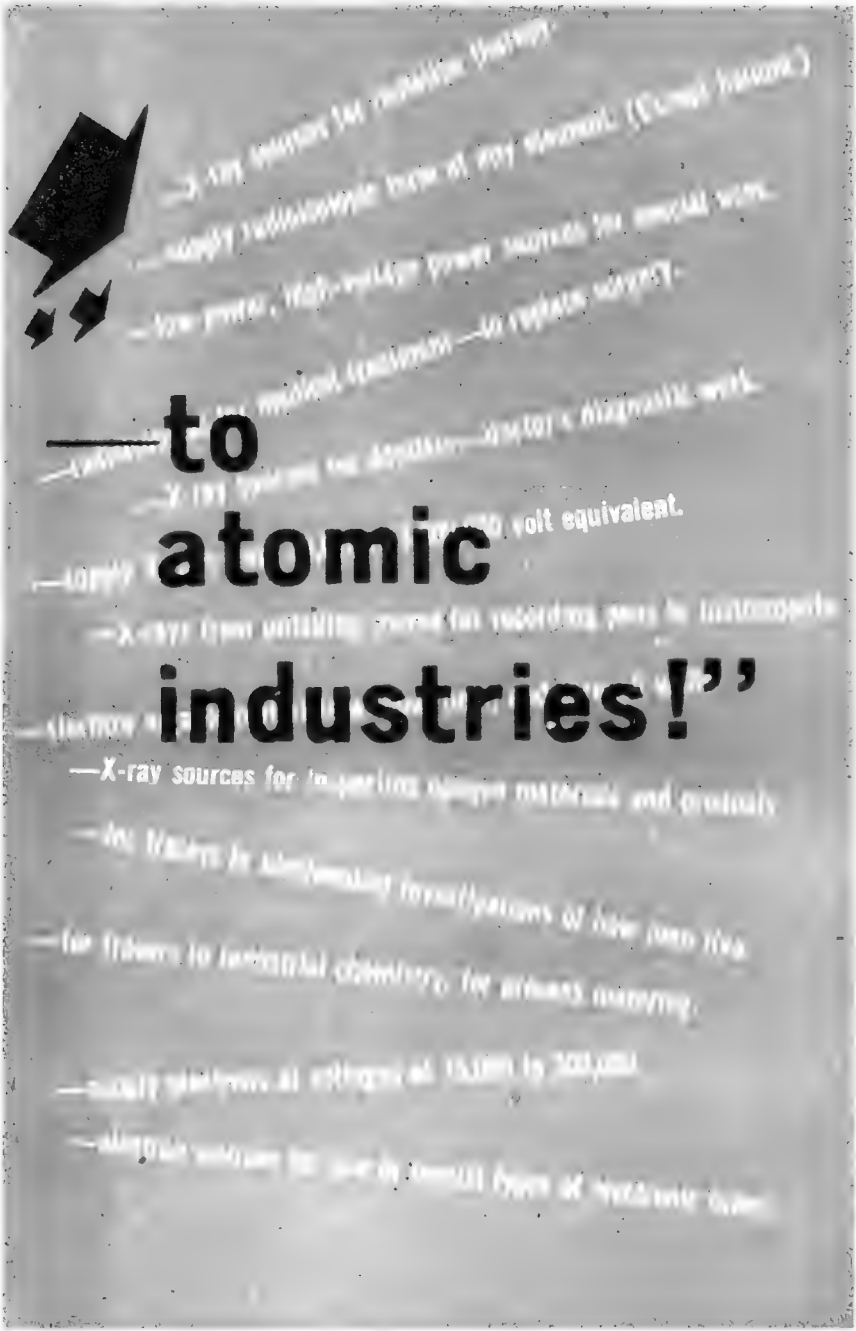
are going to be wanted!

Figure #14:

The Bunsen burner, familiar and ever-present assistant of the chemical laboratory, goes by the board in a hot-lab at Clinton. It can't be turned on, ignited, regulated, and controlled properly from outside. A battery of infrared lamps takes over the job of the burner—and the battery of lamps shown, presumably the usual two hundred fifty watt type, would burn you up just as effectively as a Bunsen burner.

Many another piece of standard laboratory apparatus was, undoubtedly, replaced by more complicated gimmicks that possessed the virtue of being readily and remotely controllable. In other cases, a familiar manipulation, so simple and familiar to the chemist that he does it automatically and almost without thought, must be replaced by some involved and Goldbergian apparatus. The simple trick of swirling liquid in a flask to hasten solution of a solid compound, or of pouring in a solution gently so that it floats as a layer on a slightly denser liquid, become complicated problems in engineering.

The problems of radio-element production require the combined talents of the nuclear physicist, the chemist, a chemical engineer, and a gadget maniac. The roentgenologist and the physician stay in the background, but their spies—hidden in identification badge and automatic pencillike electroscope—go everywhere, watching over the health of the technicians.


to
atomic
industries!”

ALIEN

BY GEORGE O. SMITH

This is not a logical, probable, or scientific story. It's a bit of insanity about a barroom brawl over a man with feathers where his hair should have been—

The telephone rang and the lieutenant of police Timothy McDowell grunted. He put down his magazine, and hastily covered the partially-clad damsel on the front cover before he answered the ringing phone.

"McDowell," he grunted.

"McDowell," came the voice in his ear. "I think ye'd better come overe here."

"What's up?"

"Been a riot at McCarthy's on Boylston Street."

"That's nothing new," growled McDowell, "excepting sometimes it's Hennesey's on Dartmouth or Kelley's on Massachusetts."

"Yeah, but this is different."

"Whut's so different about a riot in a jernt like McCarthy's on a street like Boylston?"

"Well, the witnesses say it wuz started by a guy wearin' feathers instead uv hair."

"A bird, you mean."

"Naw. 'Twas a big fella, according to tales. A huge guy that refused to take off his hat and they made a fuss. They offered to toss him out until he uncovered, and when he did, here was this full head of feathers. There was a general titter that roared up into a full laugh. The guy got mad."

"Yeah?"

"Yeah. He got mad and made a few swings. 'Twas quite a riot."

"What did McCarthy expect—a dance? When a guy gets laughed at for having feathers instead of hair . . . Holy St. Patrick! Feathers, did ye say?"

"Yup."

"Look, O'Leary," growled McDowell angrily, "you've not been drinkin' yourself, have ye?"

"Nary a drop, lieutenant."

"So this bird takes off his hat and shows feathers. The crowd laughs and he gets mad. Then what?"

"Well, he tossed the bartender through the plate glass window, clipped McCarthy on the button and tossed him across the bar and wrecked about fifteen hundred dollars worth of fine Irish whiskey. Then he sort of picked up Eddy, the bouncer, and hit Pete, the waiter, with him. Then, having started and finished his own riot, the guy takes his drink, downs it, and stamps out, slamming the door hard enough to break the glass."

"Some character," glowed McDowell, admiringly. "But what am I supposed to do?"

"McCarthy wants to swear out a warrant for the guy. But before we do, I want to know more about this whole thing. First off, what's a man doing wearing feathers instead of honest hair?"

"Ask him," grunted McDowell.

"Shall I issue the warrant?"

"Yeah—disturbing the peace. He did that, anyway. And if it's some advertising stunt—this feathers business—I'll have some wiseacre in jail in the morning. Look, O'Leary, I'll meet you at McCarthy's in ten minutes." He hung up the phone and snapped the button on his communicator.

"Doc?" he barked. "Come along if you want to. We've got us a guy wearing feathers instead of hair!"

"Trick," growled the doctor. "Go away. No one can grow feathers instead of hair."

"That's why I want you along. Come on, Doc. This is an order!"

"Confound you and your orders." He hung up angrily, and the lieutenant heard him breaking up the poker game as he snapped his own switch closed.

It was ten minutes to the second when the car pulled up before McCarthy's. O'Leary was already inside, talking to a man holding a chunk of raw beef to his eye.

"Now," said McDowell, entering with the doctor on his heels, "what's this about feathers?"

"Swear it, lieutenant. An' I

want the devil clapped in jail where he belongs."

"Sure now," said McDowell in a mollifying tone, "and you can prove them feathers were really growin'?"

"Sure," snapped McCarthy. "Here!" and he handed Lieutenant McDowell something slightly bloody. It was a bit of skin, to which was attached three tiny feathers. "Just before he bopped me I got me hands in his scalp to see if they wuz real. They wuz, because they came hard and he howled and went madman."

McDowell handed the specimen to Doc. "Examine it, Doc. One, are they real feathers? Two, is that real human skin, and three, is that human blood?"

"That'll take time," said the doctor looking at the bloody bit. "Bet that hurts, though."

"Hurts?" grunted McDowell. "So what?"

"By which I mean that he'll be visiting a doctor or a hospital for treatment. That's no home-remedy job!"

"O.K.," smiled McDowell cheerfully. "Now look, McCarthy. We'll get right on it. You've got your warrant and can prefer charges. Meanwhile there's nothing I can do here. We'll go back to the station and go to work."

"How about the damages?" growled the owner.

"I'm a policeman, not a civil lawyer," returned McDowell. "Take it to court when we catch our—bird."

"A fine force we got," grumbled McCarthy belligerently.

McDowell grunted angrily and turned to O'Leary. "He don't like us," he said.

"McCarthy, have you been closing promptly at midnight on Saturday night?" demanded O'Leary. "That's a bad law to break, you know."

"I've been lawful," returned the barkeep. "And I'll watch me step in the future."

McDowell laughed and he and the Doc left the place.

Back at the station, reporters met them with questions. McDowell held up a hand. "Look, boys," he said with a grin, "this may be something you can print. It may also be an attempt to ridicule the force. I'll tell you this much: There was a guy apparently wearing feathers instead of hair that started a riot in McCarthy's on Boylston a little while ago. Now if you'll hold off phoning that in until we check, we'll tell you whether the guy was wearing feathers—or *growing them!* Also—whether he was human. Mind waiting?"

"We'll wait," came the chorused reply.

"Whatcha going to use for lead?" asked one reporter of another.

"I don't know yet. It depends whether he was having a frat initiation or was really one of our fine feathered friends."

McDowell followed the doctor in—and the reporters followed the lieutenant in. Gag or not, thought

McDowell, these guys will be as good to me as I am to them. And if it is a gag, we'll show 'em that we know how to find out about such, anyway.

Doc ignored the room teeming with people, and went to work. He made test after test, and then pored through a couple of volumes from his bookcase. Finally he gave that up and faced the group, casting a glance at McDowell.

McDowell said: "This is off the record until I find out what he's got to say. If it's O.K., you get it first hand, O.K.?"

The reporters nodded.

Doc cleared his throat. "The skin is human—so is the blood. Indications are the feathers were growing out of the skin, not merely inserted."

"You're certain?" gasped one reporter.

"I'm reasonably sure," qualified the doctor. "Skin . . . well, skin has certain tests to prove it. This stuff is human skin, I'm certain. It couldn't be anything else. The feathers—I tried to classify them, but it will take a professional ornithologist to do that."

"But Doc," queried the reporter, "if that's human skin, how can feathers be growing out of it?"

"Ask me another," said the doctor, puzzled.

"Huh," grunted the reporter. "Man from—?" He shut his trap but quick, but the words carried enough connotation.

"Look," said McDowell, "you can use that Man from Mars gag if you want to, but don't say we said so. It's your own idea, see?"

"Right, lieutenant," they said, happy to get this much. It would make a bit of reading, this item.

"Now," said McDowell, "Doc and I are going over to Professor Meredith's place and ask him if he knows what kind of feathers these are."

One reporter spoke up quickly. "I'm holding mine until we get Meredith's report," he said. "And I've got a station wagon outside. Come on, lieutenant and Doc—and any of you mugs that want to ride along."

There was a grand rush for the door.

Professor Meredith looked the feather over carefully, classifying it as best he could. He sorted through several books, consulted many notes of his own, and made careful counts of the spines-per-inch along the shaft of the feather. He noted its coloring carefully and called for a general statement as to the color, size, and general shape of the feather.

"This is done somewhat like you file fingerprints," he told the lieutenant. "But here at home I'm stumped. I've never seen that kind before. However, over at the university we have a punched-card sorter. We can run through all known birds and see if any of the feathers agree with this specimen."

This time they took Professor Meredith along with them. Using official sanction, the professor

opened the laboratory and entered the building. It was three hours later that the professor made his official statement to the police and to the press.

"This feather is not known to the scientific world," he said. "However, it does exist, and that proves that the scientific world does not know everything there is. I would say, however, that the animal from which this came is not known in any regular part of the civilized world."

"Explain that, Professor Meredith." requested McDowell.

"It is a small feather—fully grown. It is in an advanced stage of evolution. Feathers, you know, evolved from scales and we can tell how far they have come. It must come from a small bird, which is also evidenced by the fact that it is not known to man. There are places in the backwaters of the Amazon where man has not been, and certain spots in Africa and the part of the world near Malaya, Oceania, and others."

"May we quote you on this, professor?" asked the *Press*.

"Why—yes. But tell me now, where did you get that feather?"

McDowell explained. And Professor Meredith gasped. "I'll revise my statements," he said with a smile. "This feather is not known to exist in the scientific world. If the story is true, that this feather emerged from the scalp of a man, it is a scientific curiosity that would startle the world—and make a mint for the owner in any freak show."

The reporter from the *Press* said: "Professor, you state that this feather is not known to the scientific world. Is there any chance that this—creature—is utterly alien?"

"Since the disclosure of the affair at Hiroshima and Nagasaki," smiled the professor, "a lot of people have been thinking in terms of attaining the stars—interplanetary travel. As a member of a certain society known as the Forteans, one of our big questions has been this: If interplanetary travel is possible, why hasn't someone visited us? Gentlemen, I'd not like to hear myself quoted as giving the idea too much credulence, but it is something to ponder."

That did it. There was another general rush for the car. There was a wild ride following, in which the man from the *Press* displayed that he had two things—a careful disregard for traffic laws, plus illegal ownership of a siren. But they delivered Professor Meredith to his home, the policemen to their station, and then the party broke up heading for their respective telephones.

Three hours later Lieutenant McDowell was reading a headline stating: "Hub of world to be Hub of Universe?"

McDowell groaned. "Everything happens to Boston, and everything in Boston happens on Boylston Street. And everything that happens on Boylston Street happens to me."

Doc smiled sourly. "Now what?"

"We've canvassed the medical profession from Brookline to Everett, including the boys on Scollay Square and a bouquet of fellows who aren't too squeamish about their income. Not a sign. Furthermore, that feather specimen was telephotoed to the more-complete libraries at New York, Chicago, Washington, and Berkeley. The Audubon Society has been consulted, as well as have most of the big ornithologists in the world. The sum total is this:

"That feather is strictly unlike anything known. The skin is human—or as one dermatologist put it, is as human as possible considering that it is growing feathers instead of hair. The blood is the same story."

Doc nodded. "Now what?" he repeated, though the sense of his words was different.

"We wait. Boy, there's a big scareline in all the papers. The *Press* is hinting that the guy is from outer space, having been told that there were intelligent humans here by that series of atom bomb explosions."

"If we were really intelligent, we could get along with one another without atom bombs," grunted the Doc.

"Well, the *Sphere* claims that the character is a mutant resulting from atom bomb radiation by-products, or something. He quotes the trouble that the photographic manufacturers are having with radioactive specks in their plants. The *Tribune* goes even further. He thinks the guy is an advance spy for an invasion from outer space, because his gang of feather-bearing humans are afraid to leave any world run loose with atom bombs.

"The ultraconservative *Events* even goes so far as to question the possibility of a feather-bearing man growing to full manhood without having some record of it. Based on that premise, they build an outer space yarn about it, too."

Doc grunted. "Used to be invasions from Mars," he said.

"They're smarter now," explained McDowell. "Seems as how the bright boys claim that life of humanoid varieties couldn't evolve on any planet of this system but the Earth. Therefore if it is alien, it must come from one of the stars. If it came from Mars it would be green worms, or seven-legged octopuses. Venus, they claim, would probably sprout dinosaurs or a gang of talking wall-eyed pike. Spinach, I calls it."

Doc smiled. "Notice that none of 'em is claiming that they have the truth? It's all conjecture so far."

"Trouble is that I'm the fall guy," complained McDowell. "It landed in my lap and now I'm it—expected to unravel it myself or be the laughingstock of the country, Canada, and the affiliations of the Associated Press."

The phone rang, and McDowell groaned. "Some other guy wanting

to climb on the wagon with us. Been ringing all morning, from one screwbell or another with theories, ideas, un-helpful suggestions as to how to trap the alien, and so forth. My own opinion is to treat him nice, apologize for our rather fool behavior, and see that he don't take a bad statement home with him. If he tells 'em about us from what he's seen—Hello," he bawled into the phone.

"I am Mrs. Donovan, on Tremont Street. I wanted to report that the fellow with the feathers on his head used to pass my window every morning on his way to work."

"Fine," said McDowell, unconvinced. "Will you answer me three questions?"

"Certainly."

"First, how do you know—seems he never took his hat off?"

"Well, he was large and he acted suspicious—"

"Sure," growled McDowell, hanging up the phone.

He turned again to Doc. "It's been like this. People who think they've seen him; people who are sure they've had him in for lunch, almost. Yet they missed calling about a character growing feathers instead of hair until there's a big fuss—just as though a guy with a head covered with feathers was quite the ordinary thing until he takes a swing at a guy in a saloon."

Doc said: "You've canvassed all the medics in Boston and environs?"

"In another hour we'll have all the medics in Massachusetts. Give us six hours and we'll have 'em all over New England and part of Canada, New York, and the fish along the Atlantic Ocean."

"Have you tried the non-medics?"

"Meaning?"

"Chiropodists, and the like. They aren't listed in the Medical Register, but they will often take care of a cut or scrape."

McDowell laughed. "Just like a stranger to go to a foot specialist to get a ripped scalp taken care of."

"Well, it is farfetched, but might be."

"I'm going to have the boys chalk all sorts, and we'll follow up with the pharmacists. Does that feather-headed bird know how

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much money he's costing the city, I wonder?" McDowell gritted his teeth a bit as the phone rang again. "I wonder what this one has to say," he snarled, and then barked: "McDowell," into the instrument.

"I have just seen the feather-headed man on Huntington Ave-

nue," replied a gruff voice. "This is Dr. Muldoon, and I'm in a drugstore on the corner of Huntington and Massachusetts."

"You've seen him? How did you know?"

"His hat blew off as he came out of the subway entrance here."

"Subway—?"

The doctor chuckled. "The Boston Elevated, they call it. He headed toward Symphony Hall just a moment ago—after collecting his hat."

"How many people were there?"

"Maybe a dozen. They all faded out of sight because they're a bit scared of that alien-star rumor. He grabbed his hat rather quickly, though, and hurried out of the way as I came here to telephone."

"Stay there," snapped McDowell, "and I'll be right over."

McDowell and Doc jumped into the car and went off with the siren screaming. McDowell cursed a traffic jam at Copley Square and took the corner on one and one-half wheels into Huntington. They ignored the red light halfway up Huntington, and they skidded to a stop at Massachusetts Avenue to see a portly gentleman standing on the corner. He wasted no time, but jumped in the car and introduced himself as Dr. Muldoon.

"He went this way," pointed the doctor. The car turned roughly and started down the street. They combed the rabbit-warren of streets there with no sign of the feather-headed man at all.

McDowell finally gave up. "There are a million rooming houses in this neighborhood," he said sorrowfully. "He could lose himself in any one of them."

"I'm sorry," said the doctor. "It's funny that this cut scalp hasn't caused him to turn up somewhere."

"That's what we'd hoped for," said McDowell. "But either the guy is treating himself or he's got an illegal medic to do the job."

"From what you say—a piece of scalp ripped loose—it is nothing to fool around with. How big was the piece?"

"About as big as a fingernail," grinned McDowell.

"Most dangerous. He might die of infection."

"I wonder if he knows that?"

"I wouldn't know," said Dr. Muldoon.

"Well, I've combed the doctors. Now I'm going after the dermatologists, chiropodists, osteopaths, and pharmacists. I might as well take a swing at the chiropractors, too, and maybe hit that institution down on Huntington near Massachusetts. They might know about him."

McDowell looked up at the second-story offices that bordered Massachusetts Avenue between Huntington and Boylston and shook his head. "A million doctors, dentists, and what-nots. And what is a follicologist?"

"A hair specialist."

"A what?" exploded McDowell. He jammed on the brakes with a hundred and seventy pounds of man aided with some muscle-effort

against the back of the seat. The police car put its nose down and stopped. But quick. Traffic piled up and horns blasted notice of impatience until McDowell jumped out, signaled to a traffic cop to unsnarl the mess. Then McDowell raced into the office.

He paused at the door marked: Clarence O'Toole, Follicologist. McDowell paused, listening, for two voices were coming through the door. One was rumbling, low. The other was in a familiar brogue.

"But this hurts," complained the rumble.

"Naturally. Any scalping hurts. But money will ease any hurt."

"But where's this money?"

"You are to get ten percent of my profit for a year. That plus a good head of hair. Isn't that enough?"

"Ordinarily, yes. But I'm in a jam, now. The police are looking for me with blood in their eyes."

"Now, surrender yourself," said the brogue. "Go to this Lieutenant McDowell. Explain the error. Tell them that you were afraid, that you'd been hiding because of the ridicule attendant to the feathers on your scalp. Then go to the press and demand satisfaction for their ridicule, libel; throw the book at them. That will get us the publicity we want, and as soon as the thing is explained, people will come in droves. But first you can explain to McDowell—"

"And start now!" exploded McDowell, bursting in angrily. He pointed the business-end of his revolver at them and waved them back. "Sit down," he barked. "And talk!"

"It was him," accused the feather-headed one. "He wanted me to do this—to get into an argument. To get publicity. He can grow hair—I've been as bald as an onion."

"Sure," drawled McDowell. "The jury will decide." He turned to O'Toole. "Are you a doctor?"

"I am not a licensed Doctor of Medicine."

"We'll see if what you are doing can be turned into a charge of practicing with no license."

"I'm not practicing medicine. I'm a follicologist."

"Yeah? Then what's this feather-business all about?"

"Simple. Evolution has caused every genus, every specimen of life to pass upward from the sea. Hair is evolved from scales and feathers evolved also from scales.

"Now," continued O'Toole, "baldness is attributed to lack of nourishment for the hair on the scalp. It dies. The same thing often occurs in agriculture—"

"What has farming to do with hair-growing?" demanded McDowell.

"I was coming to that. When wheat will grow no longer in a field, they plant it with corn. It is called 'Rotation of Crops.'

Similarly, I cause a change in the growth output of the scalp. It starts off with a light covering of scales, evolves into feathers in a few days, and the feathers evolve to completion. This takes seven weeks. After this time, the feathers die because of the differences in evolutionary ending of the host. Then, with the scalp renewed by the so-called Rotation of Crops."

"Uh-huh. Well, we'll let the jury decide."

Two months elapsed before O'Toole came to trial. But meantime, the judge took a vacation and returned with a luxuriant growth of hair on his head. The jury was not cited for contempt of court even though most of them insisted on keeping their hats on during proceedings. O'Toole had a good lawyer.

And Judge Murphy beamed down over the bench and said: "O'Toole, you are guilty, but sentence is suspended indefinitely. Just don't get into trouble again, that's all. And gentlemen, Lieutenant McDowell, Dr. Muldoon, and Sergeant O'Leary, I commend all of your work and will direct that you, Mr. McCarthy, be recompensed. As for you," he said to the ex-featherhead, "Mr. William B. Windsor, we have no use for foreigners—"

Mr. Windsor never got a chance to state that he was no foreigner; his mother was a Clancy.

THE END.

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The SHADOW

AT ALL NEWSSTANDS

FALSE DAWN

BY
A. BERTRAM CHANDLER

A tale of very long ago, before man had descended (sic) from the "apes," and a time when the Moon was not an airless, scarred globe in the night skies.

Angam Matangu stood with his two mates on the flat roof of his house on the outskirts of Darnala. The summer air was heavy with the scent of the night-flowering shrubs that grew in profusion in the garden below, and flaunted their pallid, faintly luminous blossoms from the plot in the center of the wide expanse of roof. The stars hung low in the warm sky. To the east was a growing, spreading pallor—a light wan and ghostly in contrast to the live, pulsing stars, the sparse, ruddy-burning lamps irregularly spaced along the thoroughfares of the city.

"The dawn," said Evanee, the

younger of the women.

Linith laughed shortly, scornfully. This was not the first time that she had arisen early with her mate, left her bed to stand here on the rooftop to await the rising of Loana. She knew that the eastern light would fade again, that with its passing what little remained of the dark night would be even darker. Then would come the real dawn—and Ramanu, Lord of Life, would flood the world with his golden light.

"The dawn," said Evanee again, a faint yet sharp edge of irritation in her voice.

"No, my dear." It was Angam who spoke, his voice gentle as always. "The false dawn. But Loana will not be long—"

The two women seated themselves upon a low seat running the inner perimeter of the parapet. Angam remained standing, statuesque in the darkness, bulking big in the robe he had donned against the slight morning chill. Watching him, Linith wondered what strange compulsion it was that brought him out on these mornings when Loana rose just a little before the sun, when the little sister world presented only a slim crescent to the eyes of her watchers. She pondered the essential unwisdom of the male. She was moved to share her thoughts with the younger woman—then abruptly decided against it. She, Evanee, would learn. This now was very romantic. Linith had found it so the first few times. But when you had seen the young Loana, the ghost of the old Loana clasped in her arms, rise once before the dawn you had seen it for all time. She stifled a yawn. You could always see the same thing just after sunset at the beginning of the month—even though the hills inland did shut the sight from view all too soon.

"Loana!" said Angam suddenly, a note almost of reverence in his deep voice. "Loana!"

Evanee jumped to her feet and ran to his side. Linith rose slowly, not without dignity, her manner conveying just a hint of boredom. She was almost wishing that she had let Evanee come up here alone with Angam. Almost— But even the sacrifice of a lazy morning was better than being relegated to the contemptible status of so many senior wives of her acquaintance.

And even she had to admit to feeling a faint thrill as the slender crescent climbed out and up from the low, dark clouds along the sea's eastern rim, trailing in its wake the first flush of the true dawn. And even she wondered, for the thousandth time, what was the nature of the beings who lived in the cities whose twinkling lights were spread in clusters over the night hemisphere. And she wondered why those lights, year by year, month by month, were thinning as the leaves of a tree are thinned by the onset of autumn, the first, chill blasts heralding the coming of winter. From nowhere a sentence formed itself in her mind—*The lights are going out one by one.* "The lights are going out one by

one," she said aloud. "Tell me, Angam, shall we see them relit in our time?"

From the direction of the airport came a certain noise of shouting, distinctly audible in the still air, the dawn hush. Presently the northbound mail soared overhead, its gas bag a huge shadow against the stars, the whine of its turbines, the throb of its propellers disturbing the birds in the trees below. With its passing they ceased their indignant outcry—but before Linith could ask her question again Evanee broke the fresh woven spell of silence.

"I read a story," she said, "about an airship that was filled with a gas many times lighter than helium, than hydrogen even. And it went up to Loana—"

Linith, although Angam's face was invisible to her, could almost see his tolerant smile as he replied to the feather-brained little fool.

"Just a story, Evanee. It couldn't be done. It will never be done. Even the heavier than air flying machine that Mang is working on now could never do it. You see, between ourselves and Loana there is no atmosphere, no air. And we must have air so that our balloons may float like corks in water, so that the wings of the new airships may have something against which to beat. The most we can hope for is that some day they will answer our light signals. I wonder," he said slowly, "what they are really like. Are they men and women like us? Or are they —things? But their life must be grim and hard. Loana has no air, and so they must live out their lives in their sealed cities under their air-tight domes." His sweeping gesture included all the world with its fields and seas, its snow-covered mountains and verdant valleys. "They haven't anything like this!"

"And their lights are going out one by one," said Linith.

As he drove to his place of work Angam found his vague forebodings of the dawn swiftly dispelled by the glory of the morning. He wondered why he should feel that the fate of his kind was linked up with that of the unknown, unguessable people of Loana. Their lights were going out one by one. He remembered the grave intonation of Linith's voice as she said it, and a shiver ran over his body, made every hair of the ruddy pelt covering his body stand briefly on end. Absentmindedly he returned the salutation of the driver of a car bound in the opposite direction, then bent all his attention to the business of nursing his power. He had let his reserve fall perilously low.

Yet he could not prevent his attention from wandering to his surroundings. The wide, clean road, the low houses on either side, each standing within its own garden, each half hidden by and blending with the luxuriant trees and shrubs, told him that this was a good world to be alive in. The throngs of cheerful people, afoot and awheel, confirmed him in this belief. Ramanu gilded their warm-

tinted pelts with his mellow rays, struck scintillant fire from the jeweled ornaments worn by men and women alike. Truly, thought Angam, this is a good world and we are a good people. We—fit. There is no strife among us as among the beasts. Each has ample. And yet— we are not too far removed from our four-footed brothers and sisters. Our feet are planted firm on the good earth. We are of the earth.

Round the bend of the road glowed the orange pillar of a power station. Angam glanced at his gauges, cut his engine and silently coasted the last few yards. The attendant, aproned, gauntleted, hurried out from his little hut at the musical summons of Angam's horn.

"Angam Matangu!" he said. "Salutation!"

"Salutation, Morrud. I have all but exhausted my power."

"Truly, Angam Matangu, none would guess that you stored power for the city. Many a time have I had to carry your cylinders a full ten yards from my hut to your car. Perhaps"—a sly smile flickered over the broad, pleasant countenance—"you are too interested in the source of your power to care overmuch for the power itself."

"Perhaps you are right, Morrud."

Angam leaned back in his seat, took his ease whilst the other went to the back of the vehicle, took therefrom the four compressed air cylinders, three empty and one almost so, that powered the efficient little engine of his car. As he had done many a time before he wondered whether or not it might be better to utilize the steam turbine for intramural transport, as already it was used for vehicles outside the city limits. But perhaps the city fathers were right. The compressed air motors made up for their minor inconveniences by a complete absence of smoke, heat or fumes. He tried to imagine what Darnala would be like were each car a source of such irritations.

Morrud returned with the fresh cylinders. Deftly he stowed them in their positions, made the necessary connections.

"Warranted full pressure," he grinned. "After all, they bear your seal." Abruptly gravity fell on him like a cloak. "I watched Loana this morning. The lights are going out one by one. Tell me, Angam Matangu, what is it? Are they dying up there? Is their power failing fast so that they must economize? They say that there is no air, no water, that life is possible only in their sealed cities. And, city by city, the life is going out of Loana. Tell me, Angam Matangu, will the same fate overtake us in the end?"

"In the end, Morrud. But that will not be for millions of years. And perhaps we shall have learned some way of holding off the cold and the dark." He drew a pencil from his pouch, initialed the slip of paper that the attendant presented to him, opened his valve and drove off. And it seemed to him

that the death of Loana, whatever that death might be, was casting its shadow over all the city of Darnala, over all the kindly, happy land of Attrin.

It was not until he arrived at the power storage plant that Angam was able to shake off his pointless, uneasy foreboding. But here, surrounded by the familiar routine of his profession, the materials and tools of his trade, he was almost able to forget the beings who, unknown, unknowable close neighbors in space, were face to face with the doom that must some day overtake all the worlds. He wished briefly that there were some way of sending the cylinders of compressed air filled by the slow, inexorable upthrust of the tide-actuated rams—then pushed the impossible desire out of his mind as he was called to deal with a blown valve at the head of one of the great cylinders.

But the thought refused to be disposed of so easily. All the time that Angam was working he was contrasting his lot, cast among a plenitude of air and water, with that of those who lived—and who were now dying—upon Loana. He wondered what conditions were like on that little, senile world. His imagination, vivid though it was, was unequal to the task.

He made the last connection.

"Shut her down, Carran," he ordered his subordinate. The master valve atop the great cylinder head spun rapidly, the noise of escaping air rose octaves in pitch, from a low whistle to a barely audible hiss, then ceased. Through the smaller valves the compressed air poured into the bottles. Gauge needles flickered and crept to their maxima, valves were shut and metal flasks sent to join the long line of their identical twins on the chute to the warehouse. It was all part of a normal working day at the Darnala power storage plant. It was power, it was air compressed by the rising waters. And on the prime source of that power, on the world whose gravitational pull sent the tidal waves sweeping from ocean to ocean, the air and water were almost gone.

Angam dipped his hands into a container of alcohol, agitated them until every trace of grease was washed from the close, ruddy fur. He dried them upon a clean piece of fabric. Then, hands clasped behind his back, he padded on broad, bare feet through his domain. Save for the occasional hiss of escaping air, the occasional plash of agitated water, it was very quiet. The row of tall, black cylinders, inside which the rams were rising with the rising tide, dwarfed the workers around their bases. A man of another age, another species, would have compared the atmosphere with that of a cathedral—but such a concept would have been incomprehensible to Angam and his fellows. True—they worshiped Ramanu, Lord of Life, in their fashion, but it was a fashion that recognized the need for ritual whilst refusing any belief in the supernatural.

The big clock on the landward wall of the plant, its polished weights gleaming dully in the subdued light, marked the tenth hour. Somewhere, somebody pulled a lanyard. A deep, boomingly melodious whistle told all Darnala that the sun was at the meridian, that this was the hour of the midday meal. All but the few who would tend the simple machinery whilst their workmates dined were streaming from the plant. Angam found Carran, assured himself that the other was conversant with all that was happening, then followed his underlings out into the blaze of noonday heat and light. He paused at the parking lot, undecided whether or not to take his car and run home, there to enjoy his midday meal with his two wives. He decided against it. They would not be expecting him. He should have dispatched a messenger earlier in the forenoon. Which reminded him—his messenger bill for the last month was far too high.

On foot he sauntered along the waterfront to the eating house kept by one Lagan.

He found Mollin Momberig, manager of the pottery, in Lagan's. It was often said that you would find there the executives of all the industries clustered around the harbor and the tidal power plants. The cooking was good and the prices were a little higher than those of the usual run of such places. High enough, in fact, to discourage those of the lower income levels. Equalitarian though society was it was recognized that equality of taste, behavior, conversational standards is impossible of attainment.

Momberig was seated in one of the little booths, a bowl of soup and a pitcher of light wine before him. He saw Angam enter, peer around in the rather dim lighting as he searched for a familiar face. Momberig raised his hand and called in his rather high pitched voice—"Angam! Angam Matangu! Will you honor me?"

"The honor is mine," replied Angam.

He took his seat opposite the other, looked with appreciation at the waitress as she brought the bill of fare. He wondered if that peculiar shade of gold were natural. Natural or not—its effect was striking. He watched the girl as she threaded her way among the tables, her muscles moving smoothly under the blond, silky pelt.

"I must come here more often, Mollin," he said.

Mollin laughed. "You might get away with it with Evanee—she doesn't know you yet. But Linith—Oh, by the way, what *does* Evanee think of your Loana gazing?"

Angam grinned, showing his big, strong teeth.

"She thinks it very romantic," he said.

But his smile wasn't all good humor. There was bitterness there—the bitterness of a man when he finds that a loved one does not, cannot take seriously those things

which to him are of the utmost importance.

"Of course, she's young—" he concluded.

Mollin pushed away his empty soup bowl, began vigorously to attack the crusty bread and strong cheese.

"I watched Loana this morning," he remarked in a sputter of crumbs. "The lights are going out, one by one."

"You know Tandrin?" said Angam pensively. "What does *he* make of it?"

"What *could* he make of it? All that he's concerned with is turning out ephemerae for the seamen. He wouldn't care if Loana were made of green cheese as long as she kept to her proper orbit, as long as the bold mariners were able to navigate their ships with her aid. Talking of mariners . . . ahoy, captain. Join us in a pitcher of Tironian wine!"

From out the adjoining booth a short, more than normally thickset figure was making his way to the door. He hesitated, then retraced his steps to where Angam and Mollin were sitting. Angam studied him with interest, decided that he liked the man. Two pale-gray eyes from beneath heavy brows regarded him steadily. The facial hair, and that of the body, was graying—yet there was an impression of youth. And the heavy gold bracelet on each wrist denoted the wearer's rank.

"Captain Noab," introduced Mollin. "Angam Matangu, manager of the power storage plant." The two men bowed. "You know what we were talking about, captain?" the master potter went on. "The city lights on Loana. What do you think is happening?"

The mariner waited until the blonde had brought him his pitcher of wine. He drank long and appreciatively. Then—

"I've watched Loana," he rumbled. "I've looked long at those city lights, wondered what it would be like if we had ships that could get up there. And when those lights started going out one by one—why, it was like losing old friends."

"But what is happening?"

"I don't know, gentlemen. But I have my own—theories. Perhaps the people of Loana are like some of the 'people' aboard our ships. They are not nice people to know. Now that the air is thin, now that the water can be counted by drops, they are fighting each other for what little remains."

"Fighting? But that's impossible! They must be at least as civilized as ourselves. And surely, under those conditions, they would band together and attempt to stave off doom by common effort."

"Yes. If they were like us. But are they? You landlubbers don't get to know rats as we seamen do. In spite of all we can do to exterminate them they still infest our ships. They are not unintelligent. If—Ramann forbid—they should ever band together it would go hard with us, the hu-

man crew. But they are incurably vicious. They fight among themselves. They live on a plane of sheer savagery undreamed of by us or, indeed, by the big majority of our four-footed brethren."

Mollin's face was incredulous. "You mean that the people of Loana are—rats?" he managed at last.

"No. But I do mean that most of us have been far too prone to think of them as people like ourselves. But it seems to me that those city lights are going out, one by one, because those living in the cities are grappled in a dreadful struggle for the last drop of water, the last lungful of air. Working with one common end in view they might save themselves. But they are sealing the doom of themselves and their world."

Angam looked up at the clock. Its big hand marked one quarter of an hour to the eleventh hour. He rose to his feet.

"I must go," he said. "My assistant awaits his relief."

"I will come with you," said Mollin. He signaled to the blond waitress, initialed with a pencil from his pouch the bill that she presented. Noab leading they emerged from the eating house into the early afternoon sunshine.

Angam had noted the captain's ship on his way to his meal. She could hardly escape notice. Perhaps to a seaman's practiced eye there were many details in which she differed from the smaller coastwise craft berthed all around her, but size alone made her stand out like a mastodon in a herd of bison. Her clean, russet painted hull and buff-colored upperworks were pleasing to the eye —yet she was so well designed that even had she been painted a drab, uniform gray her perfect lines would still have been a delight.

High above the covered-in bridge towered the tall funnel, dull crimson, and on it, in gold, a rampant lion. From the lofty masts depended the derricks, idle now during the meal hour, and piled high upon the quay, awaiting shipment, were cases and casks and bales of merchandise.

"You have a fine ship, Captain Noab," said Angam. "Tell me, when does *Arrak* sail?"

"It has not yet been decided. The stores and cargo should be aboard tomorrow. But I believe there is still some delay in the selection of the colonists."

"I should have liked to have come with you. They will need tidal engineers in this new land to the westward. But—"

"Angam is a much married man, captain," put in Mollin.

"Yes. You know what women are."

"I do," replied Noab. "That is why I have never married. But call aboard, Mollin Momberig, some time when you are free. And you too, Angam Matangu. We will drink a pitcher of wine together!"

It was barely four weeks later. Angam Matangu stood with his

two mates on the flat roof of his house on the outskirts of Darnala. The summer air was heavy with the scent of the night-flowering shrubs that grew in profusion in the garden below, that flaunted their pallid, faintly luminous blossoms from the plot in the center of the wide expanse of roof. The stars hung low in the warm sky. To the east was a growing, spreading pallor—a light wan and ghostly in contrast to the live, pulsing stars, the sparse, ruddy-burning lamps irregularly spaced along the thoroughfares of the city.

Yet, in spite of the warmth, there was more than a suggestion of autumn in the air. Mixed with the scent of the flowers was a subtle hint of overripeness, of sweet decay. There was the dim foreknowledge that soon would come the cold gales from the north, that soon the trees and the flowering shrubs would stand stripped to the cold rains, that the lesser plants would be beaten down to the earth from which they had sprung.

But this morning the air was calm.

From the rooftops of adjoining houses came a whispering, a murmuring. Once, almost alone in Darnala, Angam had kept his vigil. Now it seemed that all the city had arisen early to await the rising of Loana.

For the lights of the little sister world were now almost all gone. But one city remained—and all along its outskirts flashed and blazed other lights—evanescent, briefly flaring, somehow menacing.

Angam thought of Captain Noab and his rats. Once he had visualized the people of Loana as beings not unlike himself—now he saw them as things small and active and evil with sharp teeth and rending claws.

But those lights—

The idea of a weapon was foreign to Angam's people. True—their cattle herders in remote districts carried spears as a protection for themselves and their charges against the great cats—but beyond that they had not gone. Vegetarians as they were they were never hunters. Their herds supplied them with milk and cheese—but meat was an unknown diet to them.

But those lights—

Could it be, thought Angam, that they were using some kind of blasting powder against their fellows? Once he had seen the results of a premature burst in a quarry—even now the memory brought nausea. But his engineer's mind could conceive how—if it were imperative to kill one's fellows—explosives could be utilized. A metal tube, for example, sealed at one end and with a little ball or rod working within it like a piston, expelled by the force of the explosion. Or a metal ball filled with blasting powder and with a slow-burning fuse. It could be thrown at one's enemies. . . .

Linith rose from her seat on the parapet and walked to his side.

She slipped her arm inside his, said nothing. She was very comforting.

Evanee got up, too. She hurried across to where her husband and his first wife were standing, made haste to possess herself of his free arm.

"Why do you worry about Loana?" she pouted. "It's miles away. Nothing that happens there can possibly affect *us*."

"Yes, but—"

"What was it that Captain Noab was saying the night we had dinner aboard *Arrak?*" interrupted Linith. "Wasn't it that this was like being aboard a big, well-found ship, standing by some smaller vessel foundering in a storm and being unable to raise a finger to help?"

"Yes," replied Angam. "That's just what it *is* like, Linith. Can't you see, Evanee? There are people there. They may be like us—they most probably are not. They have hopes and fears like us. And loves—"

"And hates," said Linith somberly.

"So you believe in old Noab's wild theory."

"Don't you?"

From the airport came a flashing of lights, a shouting, an orderly confusion. Released from its moorings the northbound mail floated up, a vast, black bulk against the stars. But there was no whine of turbines, no threshing of screws. The airship rose almost vertically, a distant splashing noise telling of the jettison of water ballast. It seemed that her pilots, too, had sensed that this rising of Loana would be momentous, were determined that neither they nor their passengers would miss whatever spectacle was to be unfolded before their wondering and horrified eyes. The people of Attin could do nothing to help their close, unknown neighbors in space—but the mere fact that they would be silent, helpless witnesses of the death of a world gave them the sense of an obligation fulfilled.

Along the eastern horizon were low, dense clouds. A slight paling of the blackness above them gave brief warning of the rising of Loana. The silver crescent showed first the merest tip of one of its horns, just a single point of light over the dark sea. The point became a triangle, the triangle a scimitar. Then Loana in her entirety ruled briefly the eastern heavens. The ghost of the new Loana shone wanly within the half encircling rim of brilliance. And this pale, reflected light on the dark side was almost the only illumination. Just one little cluster of pin points of radiance remained, lost and lonely in the expanse of darkness.

"The last city," said Linith. "The last bastion against the everlasting night."

Last bastion it may have been—and even to these distant watchers it was obvious that it was suffering assault. Around its perimeter could be seen a continual

flickering, briefly flaring flames that, even at this extreme range, seemed to sear the retina. Abruptly fully half of the remaining city lights went out.

Then it happened.

The tiny luminosities seemed to fuze, to coalesce. For an infinitesimal fraction of a moment there was complete darkness—and then the whole of Loana spouted flame. An intolerable radiance swept over the little world. Not one of those watching saw the last act of the distant tragedy played out to its conclusion. The light was of a brightness too intense to be borne, brighter than the torrents of fire sweeping down the sky during a summer thunderstorm, brighter than Ramanu at the meridian. Every detail of Darnala was thrown into sharp relief. The startled birds in the trees set up a fear-crazed chattering. And the sea to the east threw back the light from the sky so that all must either close their eyes or turn their faces inland.

Evanee uttered a low cry, a little scream. She fell to the rooftop, heavily. Angam bent over her, all anxious solicitude. But it was Linith who took charge.

"Can't you see?" she said. "It was the shock. I'll look after her. Hurry and get the doctor!"

Angam straightened. Even now he could not resist the urge to take one last look at the sky. But there was nothing to be seen. A warm, gusty wind had arisen and was blustering through the widely spaced houses. The sky was overcast. And from the southward came a continual flickering of lightning and dull grumbling of thunder. And it was very hot. His pelt was damp with perspiration, and beneath it his skin prickled with an almost unendurable irritation.

"Shall I help you down with her?" he asked.

"No. I'll manage. But you might put the lights on and start some water heating on your way to the street."

In Evanee's bedroom Angam flicked with his thumb the lever of her table lamp. The spark caught at once, there were a few seconds of hissing and spluttering and then the incandescent mantle passed swiftly from red heat to a soft, white light. In the kitchen the boiler gave no trouble. Nevertheless he assured himself, before going out, that the oil reservoir was full. He felt rather proud of his level-headedness.

Outside his street door he seized the clapper of the bell that would summon the messenger for this locality. For a few seconds the deep note reverberated, then he stopped ringing and waited for the almost silent approach of the motorcycle, the bright beam of the headlamp sweeping up the pathway to his door.

Again he rang, and yet again. But for all the effect his summons had he might just as well have been upon one of the uninhabited islands to the far east. He guessed what was wrong. All the messen-

ger boys would be gathered in some quiet corner, out of the wind, discussing eagerly the signs and wonders that had blazed so terrifyingly in the dawn sky.

Grumbling a little he went to the outhouse in which he kept his car. As he backed out he saw that, in spite of the heavy overcast and the rain that was beginning to fall, it was almost light. As he drove down to the road the rain started to come down in earnest. Even in the gray light it seemed almost luminous, and as it fell there was a hissing and a crackling and a running of little blue sparks along the ground.

But Angam was in no mood to notice these things. He drove as fast as he dared, peering stolidly ahead through the almost solid sheets of water, his wheels casting a continuous fountain of spray on either side. At last he found that for which he was seeking—a column on which was mounted a curiously conventionalized little piece of statuary depicting a man holding in his hands a great flask. He turned sharp right, splattered up the drive to the house among its wet, weatherbeaten trees.

At his pull of the lanyard at the door he heard a gong somewhere within boom sonorously. Impatiently he waited, shifting from one foot to the other whilst the torrential rain made rivulets down through the close, thick fur of his body.

It was a woman who answered.

"The doctor," he said, before she could speak. "It's my wife, Evanee Matangu. It's her first child. It shouldn't have come for another month. It was the shock of—"

"It was a shock for all of us."

She turned, called into the house —"Handrin! Another maternity case!"

"Coming! Has he got a car?"

"Yes. You won't need yours."

Little remained for the doctor to do when, finally, Angam succeeded in navigating the flooded streets to his home. Evanee was in bed and with her, a tiny morsel of yellow furred humanity, was her first son. All that remained for Handrin to do was to enter the date and time of the birth in his book, to act as witness when Angam formally named the child.

Linith brought wine, poured a flagon for herself, Evanee and each of the men. Mother and father dipped fingers into each other's flagons, then each, with wine moistened index finger, touched the forehead of the infant.

"I name you Abrel," said Angam.

"I name you Abrel," said Evanee.

Then all raised their flagons.

"To the new life," they said. "May it be as fair and as good as ours has been!"

"I would sleep," said Evanee.

"Then sleep," said the doctor. "And you need have no worry about Abrel. Perhaps he was a little premature—but that I doubt. As far as I can judge he is quite

normal. Feed him as you would any other child. Sleep well."

They adjourned to the living room. Here Linith had spread a simple meal of bread and wine. The doctor needed no urging to stay and break his fast—outside the wind was howling and driving the rain in streaming sheets against wall and window.

Normally, on these occasions, conversation would inevitably have been about the new life that had come into the world. But on this morning there was only one possible topic—Loana and the dramatically tragic fate that had overtaken her.

Angam mentioned the strange prickling he had felt on his skin just after the disaster.

"Yes," said Handrin, "I felt it too. And I have felt it before—"

"Where?"

"You know the country around Boondrom?"

"No. I have often meant to spend a vacation there—although, they tell me, there is little to see these days. Boondrom is almost extinct."

"The volcano is the least interesting thing. A few miles to the west there is a rocky plain. It is barren, and at night shines with a strange luminescence. Around its outskirts are stunted, misshapen plants and shrubs. They are pallid, unhealthy, and it is hard to determine their species. And there is always heat there—a dry, scorching heat. Although this may be volcanic.

"But if you venture over this plain you feel the same unpleasant prickling as we all felt when Loana went up in flames. If you stay there too long it is literally unendurable—and persists. I have treated too daring, or foolhardy, explorers of this region. Their fur has fallen out all over their bodies. Their skin has—rotted. They have become blind."

"And what could you do for them?"

"What *could* I do for them? The sleep of peace—that is all."

"So you think—?"

"I don't know what to think. But it seems to me that there must be power there—power of some kind. Perhaps power such as Lingrud, with his zinc plates and jars of acid has discovered—the power of the lightning. Or perhaps it has other applications. There is heat there—if that could be harnessed and used to drive a steam turbine, what need for elaborate oil furnaces? It would put Mang's heavier than air flying machine into the realm of practical politics."

"But Loana—"

"I'm coming to that. Suppose the Loanans—whoever or whatever they were—had this power. Suppose, in their final struggle for the last air and water, they used this power for weapons to destroy each other. And suppose, at the finish, it got out of hand—what then?"

"But such power is inconceivable, doctor!"

"So was the power that wiped Loana clean of life—that, for all

we know, blew her to fragments."

"Blew her to fragments? But —the tides!"

Angam looked at the clock—then remembered that he had forgotten to wind its weights up the previous night. But, time or no time, his place was at his power storage plant when anything threatened his source of power. Linith and the doctor heard the door slam as he hastened out into the storm; faintly, above the wind and the rain, heard his splashing progress down the pathway to the road.

"I hope that Loana is still with us," said the doctor. "Otherwise Lingrud will have to get ahead fast with his experiments—or we shall have to move Darnala to Boondrom!"

At Boondrom was a small settlement, taking its name from the volcano. Guides lived there, and a few scientists, and those who maintained the hostels for tourists. There was railway communication with Darnala and with Tirona, although most visitors preferred to come by air. The last few miles of the rail journey were both hazardous and uncomfortable—the still frequent earth tremors did no good to the permanent way.

But Boondrom's days of glory were over. The crater was crusted thick with drab slag, only an occasional wisp of steam from an infrequent crack told of the fires slumbering quiescent in the depths.

The sleeping giant no longer attracted the casual sightseer. The arid, sterile plains to the westward had even less to recommend them to the holiday maker—yet the hostels of Boondrom were full. Lingrud was there, seeking some connection between the strange powers, sensed rather than measured, and the half-understood powers he was finding in his jars of acid with their zinc and carbon plates. Talang, the biologist, was there. It was he who conceived the idea of inducing a cow and a bull to mate in the middle of that unhealthy, uncanny expanse of bare rock. The result was even more grotesque than the examples of plant teratology surrounding the area. And Talang's fur turned snow white. His assistant was not so lucky. For him—the sleep of peace.

The scientists were watching on the summit of Boondrom when the last of Loana's city lights went out in a blaze of hell fire. Some there were who looked down to that plain to the westward, saw it flicker with answering, sympathetic light. Others forced themselves to keep their regard on the eastern heavens, saw, when the first thin veils of cirrus made vision possible, that the white-hot sphere was horribly scarred and pitted.

Then, with the first waves of heat striking the upper atmosphere, the clouds had swiftly arisen, the winds had striven to duplicate the turbulence of the end of Loana, and rain and lightning had hidden the sky, with its signs and portents, from human view.

Long and loud were the conferences held by the scientists in their

hostel on the lower slopes of Boondrom. Long and loud were their arguments concerning the power that had devastated the sister world. That this power was man-made—or the work of beings with intelligence approximating that of humanity—they did not doubt. And the evidence they had seen of this same power unleashed opened vistas at once exhilarating and terrifying. The stars were now within reach—unless the world, man's footstool, were blasted into oblivion.

Power. Power. Power.

What was the power derived from the rise and fall of the tides, from the burning of mineral or vegetable oil, from little glass jars full of acid and zinc and carbon plates, besides this power that could lick the surface of a world clean of life?

They did not know the nature of this power. But they had seen it used—and they knew that what had been done by the ruling species of one world could be done again by that of another. And with less risk. It seemed obvious that the Loanans had destroyed themselves by desperate, savage warfare. With the people of Attrin this could never happen. The race was too kindly, too sane. The only danger would be unwise, rash experimentation. And surely safeguards could be devised. In any case it might well be centuries, generations, before the secret of the Loanans' power was stumbled upon. But it would be a goal to strive for.

It was on the fifth day after the trans-spacial disaster that the ship came down from Loana.

The sky was still overcast, although the wind had dropped a little and the rain had ceased. Observers around Mount Boondrom saw a bright light at their zenith—a light that, although it was high noon, was almost intolerable to the unshielded eye.

As it dropped lower it *was* intolerable. It so happened, however, that in the village of Boondrom was a fairly large supply of dark spectacles. Those who investigated the sterile plains to the westward were liable to suffer from optic disorders—and so it was logical that the local shopkeepers should keep in stock aids to impaired vision.

The light drifted down very slowly.

The watchers on the slopes of the slumbering volcano could, at last, see that it was under a spindle-shaped structure, metallic, with huge vanes at its lower end. It was no flying machine such as they had ever seen before. It was no flying machine such as had ever taken off from the land of Attrin—and to the north were only the icy, polar wastes, and to the south and west and east were wild lands peopled only by wild beasts.

This construction, this ship, could be only one thing.

A means of escape for some few survivors from Loana, a frail ark in which they had dared the deeps of space, in which they had defied

and conquered the eternal darkness, escaped the fires of hell that had ravaged their own world.

How it could be done the watchers had no idea. Of one thing only were they certain—that it would require Power. And that Loana had possessed such power had been conclusively demonstrated.

Lower and lower drifted the strange construction, the alien ship. Brighter and brighter flared the incandescence at its base. Avidly, eagerly, the scientists scanned the details of its construction, hastily they held the object glasses of binoculars and telescopes over smoky oil flames, improvised filters that would enable them to see more than they could hope to see with the naked eye.

Here was the power of which they had dreamed, drifting down from the storm rent skies. Here was the power that would give into the hands of their race the keys to knowledge unguessed, undreamed. Here was the first contact with an alien folk from an alien world—a contact that could bring nothing good in its wake.

It seemed at first that the ship from Loana would fall upon the village of Boondrom—and then that it would fall in the cold crater of Boondrom itself. But the wind was blowing strong from the eastward, and it seemed that the strange vessel was making considerable westerly drift. It may have been that the pilot was avoiding a landing on what, even from the air, could be identified as the habitation of intelligent beings. And it is almost certain that he would try to avoid a landing on a mountain peak.

So it was that the alien ship with its tail of fire dipped behind the shoulder of Boondrom—and with its vanishing it seemed very dark. And with the abrupt cutting off of the thunder of its passage an ominous hush fell upon the world.

Some few observers, on the very summit of the mountain, saw the ship land. They saw the roaring, intolerable flames from its tail lick the surface of that dead, evil plain—and that is the last that they ever saw. The instantaneous, searing flare that followed was of too great an intensity for their minds to register, as was the crash of supernal thunder. But before the sound waves of the atomic explosion burst their eardrums all life had been scorched from them.

There were a few survivors in Boondrom itself. The village collapsed like a pack of cards—those people who were out of doors were incinerated—those between four walls were crushed by those same walls. But one or two, those who were under staircases or within doorways, escaped immediate death. Among these was a pilot of the regular air service to Darnala. He crawled out of the wreckage almost unhurt. For a while he searched for others who were still living, tore his hands and broke his nails burrowing among the wreckage. Those whom he did find—

All that he could do was administer the sleep of peace.

Increasingly violent earth tremors were completing the destruction caused by the explosion. From the summit of Boondrom came a growing, expanding pillar of steam, of smoke, of fire. Then it burst into a shower of debris, a huge mushroom of black and white and brown vapor that ballooned up to mingle with that of the first cataclysm. It was then that the pilot realized that he was deaf. He could see—hazily—but for him the volcano's rebellion and defiance was enacted in dumb show.

Reeling like one drunken, whimpering a little, although he did not know it, he made his way to the airport. Most of the mooring masts were down—and the ships which had swung to them were fast drifting west, unmanned derelicts destined to fall at last in the sea to the brief wonder of the shark and whale.

One mast remained standing, and to it lay a little four-passenger ship. The pilot clambered up the ladder to the head of the mast, swung himself hand over hand to the gondola. He checked his water, his oil. He worked the lever that would ignite the furnace, looked anxiously at the gauge that would tell him when he had enough power to get under way.

Already volcanic debris was falling from the sky. Some of it fell with dull thuds on to the fabric of the balloon—although the noise he never heard. But he felt the vibration that trembled through the structure of the ship with every impact. He thought of cutting adrift—then realized that should he do so the wind would carry him right over the crater of the furiously erupting Boondrom. And beyond the volcano—should he survive the passage. The sky was alight with the flaring incandescence that made the volcanic fires a negation of light by contrast.

The needle of the gauge quivered, crept with agonizing slowness to the red line. The pilot pulled out the toggle from the eye of his mooring rope, opened his throttle and fed the steam from his water tube boiler into the turbines. The screws spun until they became shimmering, transparent circles. With helm hard over the little airship circled, steadied on a southeasterly course for Darnala.

When the man from Boondrom, nursing his battered little ship through the wind, the lightning and the torrential rain, reached Darnala he found the city in flames. He was too dazed, too mentally shattered by what he had already experienced to feel more than a mild surprise. And a dull resentment was there too, a feeling that it was essentially unfair that he should be the bearer of unappreciated, almost ignored evil tidings.

When a full twenty miles from the coast he had become aware that something was wrong. Down the wind came a haze of smoke, an acrid smell of burning. Sparks

glinted and briefly glowed in the gale-driven murk like evil fireflies. And in the hills to the west of the town a new volcano spouted lava and boiling mud, so that he was obliged to make a wide detour to escape being wrecked in the violent updraught.

So it was that he approached the city from the south. He noted, almost without interest, the devastation in the harbor. The shipping was lying on its beam ends, sunk at its moorings with only masts and funnels showing above the heavy swell that was sweeping in over the breakwater. And surely the breakwater was gone— Certain it was that the watery hosts were marching in from the east to hurl themselves with unbroken fury upon the quays and wharves of the port. Only the great *Arrak* seemed undamaged, seaworthy. But she was berthed on the western side of the Dirnig Mole, partially protected from wind and sea by the low, strong warehouse running along its length. He could see the little figures of men busy about her decks, and from her tall smokestack a thin stream of black smoke poured down wind to mingle with the funeral pall of the doomed city.

Rollers creaked and the ship from Boondrom lost altitude as the tightening nets compressed the gas in the balloon. The airport was very close now, and its mooring masts loomed lofty through the acrid mist. But from each of them swayed and lurched a vast, billowing shape. Stray mooring lines, flying loose in the gale, coiled and snapped like whips. On the ground was a crowd of people—dumb, patient, resigned. At a signal from some official they began to move towards one of the masts. The man from Boondrom saw the leading trickle of refugees moving up inside the latticework structure with the slow deliberation of a column of ants on the march.

The little ship circled lower, and still lower.

At last one of the airport officials looked up from his work of supervising the evacuation, raised his megaphone and shouted something. Even if the man from Boondrom had not been deafened he would never have heard—the shrieking gale, the whine of giant turbines and the throb of innumerable propellers would have drowned any sound so puny as that of the human voice.

The official realized this, and gestured. The meaning of the sweeping motion of his arm was unmistakable. The incoming ship could not be berthed, would have to shift for herself as well as she might. The pilot raised his arm in a gesture of acceptance and farewell. He released the tension on his compressor nets. He rose swiftly, and the gale took hold of him, drove him down upon the unwieldy bulk of a ship already more than half loaded with refugees. Putting his helm hard over, opening the throttle of his starboard engine to its fullest extent, he strove desperately to avoid

collision. He was almost successful, but, as he swept past and under the big ship's port after power unit, the tips of the idling propeller blades barely touched the taut upper surface of his gas bag.

He did not fall at once. Even when the gas was almost gone from the balloon the wind caught him and held him, drove him parachute-wise over the burning ruins of the city. And it was on one of the few houses—spared by some freak of blast—still standing that he finally crashed. His gondola failed to clear the parapet of the roof, the force of the impact pitched him out and clear. Had it not been for the plot of soft earth, the roof garden into which he was thrown, he would have died there and then. As it was, he lay there, dazed, while above him flapped and crackled the torn rags of silk that had once been his balloon, while the blazing oil from his engine poured down the side of the house and was driven by the screaming wind through the already broken windows.

"He will live, Angam."

The aviator could not hear the words, but he looked up through his haze of pain, saw the bearded lips move, dimly guessed what they were saying. The earth beneath him shook violently—and the stabbing pain from his broken legs and arm, bound and splinted as they were, made him cry out. Out of the corner of his eye he saw the shower of sparks as the last ruins of the gutted house collapsed.

"But to what purpose, Handrin?" demanded the other man. "Attrin is dying. Those of us still sound may drag out miserable lives for a few more years—or days. But for him—better the sleep of peace, I say."

"Angam is right," said Linith.

Magra, the doctor's wife, said nothing. And Evanee watched out of wide, fear-crazed eyes, clutching the infant Abrel to her breast ever more tightly.

"Perhaps you are right," said Handrin. He fumbled in his pouch, brought out the little phial in which was the sleep of peace. He withdrew the stopper. His hand went out, reaching for the aviator's mouth. But the pilot put out a feeble arm, warded off the merciful oblivion.

"No," he gasped, "not yet. I must tell my story. You must know what happened—"

And so, slowly, painfully, he told his tale of the disaster at Boondrom. Told of the alien ship riding down on its wings of fire and thunder, of the fire and thunder that had attended its coming to that evil plain to the west of the volcano. And as he talked, gaspingly, brokenly, the earth tremors grew even more frequent, the earth tremors and the sensation that the whole world was tilting beneath them like the deck of a foundering ship.

When he had finished he took the deadly draught gladly. His duty was done. He had told his story, given his unnecessary warning. And it is doubtful if he would have survived long had he not been

given the sleep of peace. But it made his passing easier.

"So," said Handrin, "I think I see. Suppose that there was another deposit of those same minerals that make the Boondrom plain under the hills to the west of Darnala— And suppose that by some subterranean vein, the two were connected— Don't you see? There is power there—the power that the Loanans used to drive their ship. And when their ship touched down the fire from the exhausts, the fire from some strange machine burning that mineral as fuel, touched off the tons of fuel lying idle at Boondrom. And the spark flashed along the underground vein, like the little spark along the fuse of a blasting charge. And the charge was under the hills just inland from the city—"

"But what is happening now?"

"You should know better than I, Angam. You are an engineer."

"Yes. Perhaps I should. I know that all Attrin is balanced on the edge of the western deep like houses on a cliff edge. And I know that there is a line of weakness in the earth's crust running through Boondrom— And what I know frightens me. Handrin! Attrin is sinking like a great ship!"

"Look!" cried Linith.

Overhead, rising and falling in their passage, their line ragged yet, considering the adverse weather conditions, surprisingly well kept, came a fleet of great ships. The big passenger liners were there, and the little freighters, each towing astern its string of motorless cargo balloons. But the cargo carried on this last occasion was human lives. Around the fringes of the squadron soared and hovered the tiny pleasure craft, some so heavily laden as to have the utmost difficulty in maintaining altitude.

The leading ship swung as she passed over the center of the city, bore down for the airport. One by one, sagging to leeward, clawing up into the wind in an attempt to maintain their line, the rest followed. The throbbing of their propellers was loud and insistent above the howling of the gale.

"From Tirona," said Handrin.

"Tirona is gone," replied Angam.

"And they will find no refuge here."

They were still sitting in the garden, finding a little shelter in the lee of the ruins of the house, when the messenger from the City Fathers found them. His hair was plastered flat against his body and he was bleeding from a deep cut over his right eye. He accepted gratefully the flagon of wine passed to him by Linith—she had salvaged some scraps of food and drink from the wreckage of her home. He drank deeply. Then—

"You are Angam Matangu?"

"Yes."

"The City Fathers send you this, Angam Matangu."

Angam drew the roll of fabric from its cylinder. He read it slowly, his lips unconsciously shaping the words as his eye ran down the lines of script.

"I am ordered aboard *Arrak*," he said at last. "I and my family."

To the messenger— "Is there any word concerning my friend Dr. Handrin?"

"I fear not, Angam Matangu. The City Fathers have drawn up a list—they desire to save as many representative technicians as possible so that a new civilization may be set up in the new lands to the east. The quota of physicians and surgeons is already filled."

"It is as well," said Handrin. "With Attrin gone—what remains? Magra and I will sit here among the ruins with our wine and our memories of happiness. And will you share them?" he asked the messenger.

"It would be an honor—but I would not intrude."

"Then one last flagon of wine before we part."

And when Angam and his family trudged down the long driveway to the road to the port they did not know whether to pity or envy Handrin and Magra.

Angam was glad that he had not attempted to make the journey by car. The roads were blocked by piles of wreckage, by fallen trees. And great crevasses had opened here and there, deep chasms from which came a sullen rumbling, the acrid fumes of the pit beneath. In one place a great, roaring geyser was throwing its column of steam and spray high into the air. Down wind its condensation fell as a scalding rain.

Through the still smoldering ruins slunk lean, tawny shapes—the beasts from the wild country driven to the coast by unknown, half-guessed cataclysms inland. They saw the half-eaten body of a woman with a lioness crouched over it. The great cat lifted its head and snarled as they passed. And when they had left the grisly sight behind they heard a great yelping and snarling—and turned to see a pack of wolves disputing for the bodies of both hunter and victim.

Evanee was stumbling and whimpering so, without a word, Angam lifted Abrel from her grasp. The child set up a thin, dismal howling. "Let me," said Linith. In her arms the infant was quiet.

Long before they got to the port the water was over their ankles. As they came down the broad road to the quays it was knee deep. Some of the smaller craft had been righted, had been brought far inland. It was fantastic and terrifying to see ships among what was left of the houses.

But Angam had no eyes for any of these things. He was trying to follow the once familiar road to the Dirnig Mole—a road now feet deep beneath the swirling waters. Ahead, her tall funnel a beacon through the spray and driving rain, lay *Arrak*. Her derricks had been lowered, as far as the inexperienced Angam could see at this distance she was ready for sea. A plume of white steam grew suddenly from her funnel, but the deep booming note of her whistle was lost in the clamor of wind and water.

Angam realized that he wanted to be saved. The drive, the savage will to live, was singularly absent

from the make-up of his race—but now, to him, *Arrak* was Attrin. She was all that remained of the fair civilization that had stood on the threshold of maturity. She *was* that civilization—and would carry its seeds to whatever strange land chance and storm might bring her.

Putting his head down he waded on stolidly. Behind him came Evanee, and behind her Linith, the child still in her arms. He no longer troubled to feel his way with caution—Captain Noab could not afford to hang on much longer. He had already stayed at his berth far longer than was prudent. And far more was at stake than his ship, the lives of his passengers and crew.

Neck high the water swirled around Angam as he reached for the ropes at the foot of the gangway. Holding on with his left hand he helped Evanee on to the platform. Linith handed Abrel up to Evanee, then hoisted herself up after the child. She and the sailor on duty seized Angam—pulled him up to the grating where he lay gasping like a landed fish.

An officer came down, consulted a list.

"Twenty more to come," he said, "but we can't delay much longer."

Together with his women Angam clambered to the upper deck. The wide expanse was crammed with refugees. Scorning the warmth and the dryness below they were here to see the last of their home, their world. The wind buffeted them and the rain stung and bruised them with its countless driving arrows—yet they could not bring themselves to seek shelter below decks.

To the west, beyond the gutted city, the low line of hills spouted flame and smoke. It seemed that those hills were lower than of old, that they were sinking, slowly but surely as the land of Attrin foundered and tilted, heeled to the west as it sank into the unplumbed depths of the western ocean. The hills *were* lower—soon the flaring volcanoes were only a low line of fire along the horizon—red and menacing below the black pall of smoke.

Some of the smaller ships, their decks packed tight, cast loose from their improvised moorings and nosed out to the sea. They passed over the place where the breakwater had been, turned their blunt noses to meet the steep, vicious waves. Doggedly they plunged into the weather, spray and green water sweeping over their superstructures until only their flaring funnels were visible. The refugees aboard *Arrak* watched them go—and watched with horror the great wall of water that came roaring in from the east.

Steep it was, and towering high beyond any seaman's experience. The line of foam along its crest was like the snow along the peaks of some mountain range. The little ships reared to meet it with the gallantry of the very small—reared and slid their sterns under.

From the bridge came a deep and urgent bellowing as Noab shouted orders to his officers on stations. The wind took his words, shredded them and tossed them wide in use-

less, unintelligible fragments. But the crew at bow and stern had anticipated such an emergency, knew as well as their captain what they must do. Axes gleamed dully in the lurid light, fell upon the bartaut mooring lines. *Arrak* shuddered and stirred, heaved and lifted to the smaller seas that were running before the monster sea like foothills before a mountain range.

Now only one hawser remained, a rope running aft from the forecastle head, its eye over a deep submerged bollard on the invisible quay. Noab came ahead on his engines. Slowly at first, then with increasing speed, the stern came away from the wharf. Now the onrushing wall of water was broad on the starboard bow—now it was coming ahead. More orders from the bridge—and again the axes gleamed. The last rope parted with an explosive crack, the ends sprang back and cut him who had wielded the ax almost in two. But *Arrak* was free. Using his stern power Noab swung her to meet the seismic wave.

As had done her sisters—*Arrak* reared to meet the monster. Her bows lifted, steeper and ever steeper. On deck was a scene of terrible confusion as that tightly packed mass of people fought to keep their footing, slithered helplessly aft on the wet, slippery planking. Stout rails—designed to stand under almost any weight but this, snapped under the strain, bodies fell into the sea or tumbled from the upper deck to crash, maimed and broken, on to the after hatches. From below came the fear-crazed bellowing of the cattle.

But *Arrak* fought like a thing alive, her screws bit deep and strong, held the enormous weight of the ship against that fatal, sternward plunge. On her bridge Noab himself had the wheel, conscious that should he allow *Arrak* to sag to port or starboard she would be doomed. As she would be doomed if one of the two thin pipes running from wheelhouse to steering engine, the hydraulic system by which the motion of his wheel was imparted to his rudder, should break or burst.

Over the bow loomed a watery cliff. It broke and tumbled, surged aft along the foredeck in a boiling cascade. It hit the bridge structure like something solid—and Noab found himself sprawled, with his officers and quartermasters, against the after bulkhead of the wheelhouse. The broken wheel was still in his hands. Before he could regain his feet *Arrak's* bow dipped, sickeningly, dreadfully. Thirty thousand tons deadweight — she slid down the seaward slope of the ocean mountain with uncontrolled, uncontrollable acceleration. When she reached the trough it was as though she had been driven ashore at full speed. Pipes burst, rivets rattled around her decks and compartments like machine gun fire. To the general tumult was added the hissing roar of escaping steam.

Only a few of those aft saw the end of Attrin. The hills to the west of Darnala subsided, and over them poured the full weight of the western ocean. Seismic wave from

the east met seismic wave from the west—and the pillar of water and steam and wreckage surged bellowing to the low clouds, licking down such few airships as still hovered over the scene of the tragedy, as had not been blown west to perish in the hell of steam and whirlwind and atomic fire over Boondrom.

And like a crippled beast *Arrak* moved over the face of the waters —aimless, riding out the storm, a ship without a haven.

In his plain, solidly furnished stateroom Noab sat at the head of his table. Around him were his officers—reflecting their master's mood of grave concern. At the lower end of the table were the representatives of the refugees.

"But where are we, Noab?" It was Angam who spoke, an Angam much older than the man who had boarded *Arrak* on the Day of the Ending. His pelt was liberally sprinkled with silver—and yet a bare thirty days had passed since he had come aboard the ship.

"I wish that I knew, Angam Matangu. Since the sky cleared we have obtained accurate latitudes. As you know—longitude cannot, unless we can devise a clock that is a perfect timekeeper, be determined. And it has been impossible to estimate what easting we have made since The End. It is possible that the indraught into the gulf where Attrin once was has more than canceled the distance steamed from Attrin.

"But I intend to steer east. We cannot steer west for obvious reasons—it would mean passing over the grave of our homeland and, for all we know, the volcanoes are still active. On this course we must find land sooner or later.

"Now— Food and water. Regarding these the situation is good. So great has been our death roll that we have now a bare half of the two thousand originally provisioned for.

"Fuel— That is the problem. We have enough for about ten days steaming at reduced speed. I need hardly tell you gentlemen—most of you are engineers—that the consumption varies, roughly, as the cube of the speed. To put it crudely I intend to go a long way in a long time.

"Starting from tomorrow we shall send the small aircraft we carry on reconnaissance flights.

"And more than that we cannot do."

"You have done more than any other man could have done, Noab." There was a general murmur of approbation from the foot of the table. "You have snatched some faint memory of the happiness that was Attrin from the burning, and you will see the seeds of the new Attrin planted in the islands of the east!"

Noab rose to his feet. He seemed to be deeply moved. He signaled to a girl who was standing by a locker against the after bulkhead. From it she took jars and flagons, handed wine to the captain and to each of his guests.

"To the new Attrin," toasted Angam. "To the new dawn of

civilization besides which this that has just perished will be the false dawn!"

"To the true dawn!"

Solitary, a ship by herself, *Arrak* moved over the face of the waters. Her once clean hull was streaked with rust, the crimson funnel with its golden lion was salt-caked and dingy. To the west the afterglow painted the sky with pale fire. Eastward, among the first, faint stars, was a little light that bobbed and dipped, that wove among the fixed constellations, that steadily waxed in brightness.

The whine of an aircraft turbine was heard, the throbbing of aerial propellers. The little airship circled the surface vessel. It came in from astern, hovered above the after deck, matched course and speed with its mother ship. From it snaked down a plummet weighted line. The sailors caught it, took it to a winch. Swaying on the end of its tether like a child's toy balloon the little airship was drawn down to the deck. Willing hands seized the lines pendant from its gondola, threw hasty turns around cleats and bollards. When his craft was securely moored the pilot clambered down to the gently rising and falling planking. His keen eyes distinguished in the dusk the one he was looking for. "Captain Noab! Sir! Land!"

The cry went round the ship like wildfire. Long before Noab and his aviator in the chartroom had determined such matters as course and speed every man, woman and child in the vessel knew that their voyaging was almost ended. Even the livestock below decks seemed to sense it—there arose a clamorous bellowing from their stalls that had nothing in it of fear or apprehension.

On his bridge Noab walked to the binnacle, peered into its dimly lighted bowl. "Steer South Ninety-Five East," he ordered the quartermaster. One of the officers was speaking into a voice pipe. "Revolutions for five knots, please," he said.

In his cramped quarters Angam sat with Evanee and Linith.

"Land," he said. In his voice was wonder that there should be any solidity left in the world.

"And about time," grumbled Evanee. "I don't believe that that old man Noab ever knew where we were!"

"But what sort of land?" Linith, as always, was practical.

"The airman said that there were hills, and forests, and streams. But to the west it was bare and glistening, like the ooze of the ocean bed. It seemed that it was still rising from the sea."

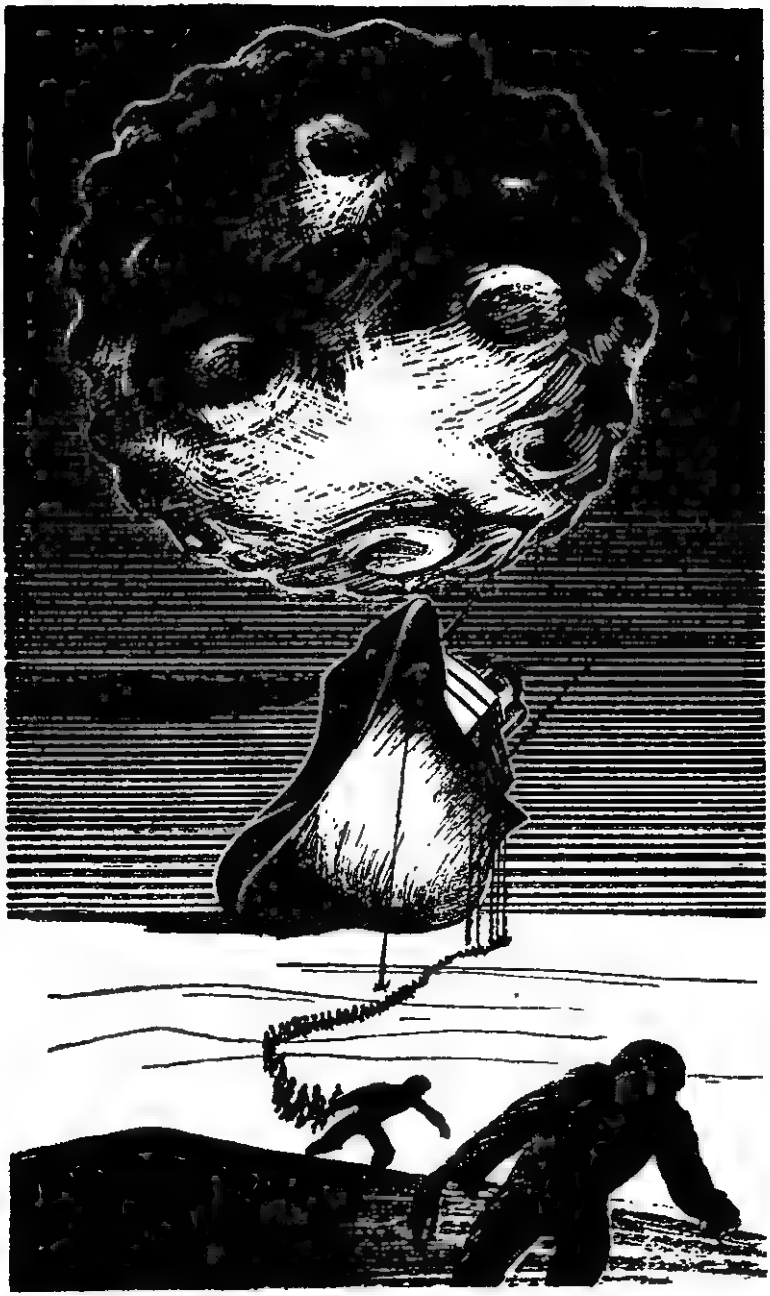
"Something must rise, I suppose, to balance Attrin."

"What does it matter? We have found a new home."

"And when do we get there?"

"The captain has reduced speed"—at this there was a cry of indignation from Evanee—"he does not want to arrive before dawn."

It was not only Evanee who was incensed by Noab's caution. Throughout the ship ran the im-



patient murmuring, the indignant whispers. The rails were lined by people peering ahead into the darkness. Overhead rode Loana, not far from the full, her once smooth face scarred and pitted. On any other night the spectacle of the seared sister world, still dreadfully novel, would have held the eye of every observer. But not on this night. Every low dark cloud along the eastern horizon was hailed as the long desired and anticipated landfall—and every low dark cloud that lifted from the rim of the world made all beholders prey to the uneasy suspicion that the pilot of the little airship had been the victim of an hallucination.

But, recking little of the hopes and fears of her living freight, the ship ploughed steadily on. From aft, at regular intervals, came the whine of the little steam winch as the questing plummet, having failed in its search for bottom, was hauled once more to the taffrail. From the bridge, deep, sonorous, came the sound of the gong as the last watches of the voyage tolled each its own requiem.

At about an hour before dawn *Arrak* struck. It was not a violent jar—as strandings go it was very gentle. The ship slid forward slowly, then stopped. The great screws threshed in reverse—but *Arrak* did not move. From the stern a depth of ninety fathoms was obtained—but along the sides, from forward to as far aft as the mainmast, there was a bare thirty-five feet. And this was *Arrak's* draught.

On the bridge the tired old man who wore on his wrists the gold bracelets of authority heard the latest reports, then said—"There is nothing more for me to do. I have found land for them. The ship is safe. Today, or tomorrow, or the day after, the land will have risen still further—and they will be able to walk ashore. And I have thrown away my ship."

One of his officers suggested laying out an anchor astern, the jettison of stores and ballast, but the captain refused to listen.

"No," he said. "The purpose of this, our last voyage, has been fulfilled. This is our last port. And nowhere, in all the world, is there another haven for us."

With the first flush of dawn the water fell still further, and as the wan light increased so did the depth of water around the ship decrease. From aft came ominous creakings as the stern hanging clear of the ledge with no support, began to sag and buckle. But only the seamen were concerned with this. The refugees crowded the decks, staring ahead to the promised land. They saw the green hills and the trees, the river that poured itself over the golden sand of the beach and then spread itself over the gray slime of what had been the ocean bed.

Some were already over the side, clambering down the hastily improvised ladders, floundering waist deep in the stinking ooze. Overhead the little airship circled, its balloon glowing golden in the first rays of Ramanu. And the ship that had served them so faithfully was no more than a prison from which

they proposed to escape with the utmost possible speed.

Angam Matangu sat outside his hut on the westward slopes of Mount Arrak. The ship after which the hill was named, the mountain that had been upthrust from the ocean depths silently and smoothly, was now little more than a mound of rusted girders and ruined, useless machinery—standing silent among the rank grasses, a mute witness to the high estate from which Man had fallen.

Yet Angam was content. Blue in the evening air rose the thin smoke of the cooking fires where the women of the tribe prepared the evening meal. Around him were his fields—the ground from which he had wrested, by the sweat of his brow throughout the long, hard years, sustenance for his family and himself. Linith was gone—but it was pleasant to sit here and remember her. He wrinkled his hairy brows—gray now—in an effort to recall how many winters ago that had been.

She had been too civilized for this life, had Linith. But Evanee—it was surprising how she had hardened. Yes—a wry smile flickered over his broad mouth—and coarsened. But she had the qualities that made for survival until the race should recover from the shock of its near extinction, should begin once more the long climb upwards to mechanized civilization.

Abrel appeared on the slope of the hill, climbed upwards to his father with long, easy strides. He sat down beside the older man, pulled a generous bunch off the spray of berries that he was carrying and gave them to him.

"Thank you, Abrel. These are good."

"Yes. I was thinking that we might take cuttings and try to cultivate the bushes in our own garden."

"By all means, son."

For a while the two sat in silence. Then—

"What is the trouble between you and Carran?"

"Trouble? Why, there is no trouble, Father."

"Evanee told me that you had been interfering with him, would not let him live his life his own way."

"Suppose that way is altogether alien from what we consider right?"

"Oh. So there has been trouble between you and your brother. Just what was it?"

"It would have come to the ears of the Village Fathers sooner or later. It is all these people who were born after the Day of the Ending. You must know that they are different."

"Physically, yes. They are smooth and hairless. Their bodies are frail. And they move around so quickly that they will be worn out before they reach maturity."

"But it's more than physical, father. It's here!" The young man tapped his head. "Do you know what I found them doing? Carran and Dorilee and Turbal? They had taken a cow from the herd of Drinrud, and they had slit

its throat with a sharp instrument they had made from the metal of the *Arrak*. And they were cutting off great pieces of the bleeding flesh—and they were *eating* it!"

"Abrel!"

"But it's true, Father. And when I stopped them they were ashamed—but I saw a look in their eyes that wasn't human. Have you ever looked into the eyes of a trapped rat? And seen the dreadful, sickening hate there? It was like that."

"Hate," muttered the old man. "We do not hate. We cannot. Yet—" His mind winged back to the evil plain west of Boondrom, to the plant monsters encircling it, to the power of the plain and the power that had blasted Loana and that had sunk Attrin. He thought of the new hairless folk that had been born since the Day of the Ending—of them and of the other children scarce more intelligent than the beasts. He thought of the arrogance of these new hairless folk, of their drive and ambition, of the unhuman intensity of their emotions. Yet, one of them was his son—and was beloved by Evanee.

"I must think this over," he muttered. "Tomorrow I will call a meeting of the Village Fathers."

But the next day was too late.

Late that night he was awakened by Evanee. She bent over his bed, the bed in which he was sunk deep in a nostalgic dream of Attrin. She shook him, gently at first, then roughly. "Linith," he said, half awake. "Linith."

"It's me, you old fool. It is long past the tenth hour, and neither Abrel nor Carran are in."

"What of it? They are old enough to look after themselves."

"Yes. But you don't know all of it. Abrel has been interfering with Carran and his friends. I am afraid that he may have done them some hurt."

And Angam was afraid, but not for Carran. He arose hastily, cast around him a robe against the night chill. Swiftly for one of his bulk he padded to the doorway of the hut, bent his head under the low lintel and passed outside.

The sky was clear and Loana was at the full. The ghastly silver face shone with a hard radiance, casting black shadows from huts and trees and rocks. It was very quiet.

The old man paused, listening intently. It seemed to him that from a black copse on the upper slopes of the hill came the noise of chanting. There was some quality about it, evil, alien, that made every hair of his body stand erect. He hesitated—then reached inside his doorway for the metal-tipped sapling that served both as spear and staff. The feel of the rough haft of his weapon in his hand was comforting.

Swiftly, silently, he climbed the hill. More slowly, but still silently, he crept through the undergrowth of the coppice. A lane of trees had been cut down in a north-south direction, and at the northern end was a stone slab. There was something tied on the slab, something dark. It lay in the shadows cast

by the hairless folk around the altar.

One of them was Carran.

Held high in his right hand was something that glinted. He faced away from the slab, faced south so that the rays of Loana shone full in his face.

"Mother Loana, behold us, thy children," he cried.

"Mother Loana, behold us, thy children.

"Spawned of the thunder, the flame and the flood—

"Lift us to sit with thee,

"Smite thou our enemy—

"Let the sins of our fathers be washed out in blood!"

The group before the altar parted. Behind it was revealed the girl Dorilee. In the masses of her black hair was bound a crescent of shining silver. And in the light of Loana her body shone as silvery bright as Loana herself.

In her right hand was a long knife.

And the thing on the altar trussed and gagged, was Abrel.

Angam moved fast—but not fast enough. The knife had buried itself in Abrel's heart before he had broken through the undergrowth. At first those around the sacrifice did not notice him—then Carran turned. His right hand, that held a knife like that used by Dorilee, swept forward. Angam parried with his spear, caught his son a resounding blow on the right temple. The young man staggered and fell to the ground.

Immediately the hairless folk were all around the old man. They

THE BEARDED MEN

There was a whole crew of them—men with beards, who looked like hermits and had a fighting interest in model houses.

Doc Savage began to take notice when one of them, for no apparent reason, stole part of a little house. . . .

The girl with the truck-driver's lingo was mixed up in it, too, in some way—and so was a missing scientist. It added up to as violent a mess of trouble as the boys had ever seen!

Read DEATH IN LITTLE HOUSES, another thrilling Doc Savage novel, in the October issue of

DOC SAVAGE

AT ALL NEWSSTANDS

were weak—but they were many. They pinioned his arms to his sides, one of them grasped the hair of his head and pulled it back to stretch his neck for the eager knife.

But Carran, raising himself on one elbow, called to his followers to stop.

"It is my father," he said. "Do not harm him."

"But Abrel was your brother."

"No matter. Him I hated."

He took the old man's spear, leaned upon it like a staff. In spite of his youth an almost visible mantle of authority seemed to descend upon him.

"I am sorry, father," he said, "but it is best that we—I and my people—go. We are too like—and too unlike—to live in peace. Besides—we know that you and your fellows, by your neglect of Loana, who craves worship, brought upon yourselves the fire and the flood. We can live no longer with unbelievers."

"Then go," said Angam.

There was nothing more to be said. Carran and his people trooped silently from the clearing. Angam watched them go, their pale forms flitting down the hillside. He wondered dimly what they would make of it all—whether they would, in the fullness of time, attain the heights of lost Attrin. He could not say—balanced against their undoubted drive was their emotional instability, their queer, unbalanced beliefs, the savagery that might as easily cast them into the depths as force them, fighting tooth and nail, to the peaks.

Angam sat by the altar and the dead body of his son Abrel—an old man and tired. The night was chill and he drew his robe ever closer about him. The stars shone scintillant in the clear sky. Loana slowly slipped from the meridian and dipped, lower and lower, to the western horizon. In the east fresh constellations rose and wheeled in slow processional towards the zenith. A wan light, ghostly, seemingly darker than the starry darkness, waxed slowly. And as the old man rose stiffly to his feet it was already fading.

"The false dawn," he muttered into his beard. "The false dawn—"

Were Carran and his kind, then, the true dawn?

Or would they play out, here on Earth, the tragic drama that had made the Moon a scarred and pitted horror—unleash powers that would send the world reeling forever through time and space, a seared and sterile mausoleum of the hopes and fears of the ages?

THE END.

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TO STILL THE DRUMS

BY CHAN DAVIS

***Some** men ask only peace, and a chance to do their work; to some, a mighty weapon is an irresistible temptation to power, with or without the consent of a nation. And such must be watched.*

It all began with that letter from Kathryn, and the thing that began it was the postscript at the bottom of the last page.

All the postscript said was this: "About two and a half lines of your last letter were cut out by the censor." There was nothing too remarkable about that. To be sure, it was 1948 and the war was quite definitely over; but I was stationed at Redcliff, Colorado, the rocket-research place, and Redcliff had about as strict a censorship lid on it as any military base in the country. You may have read about Redcliff a number of months back, when one of the experimental flights of XFE-III—"Effie," we called her—went slightly askew.

We lost radar contact with her and she went right on up and never came down; making me, accidentally, a co-designer of the first man-made ship to leave the Earth.

You remember the story? That one got into the papers, and the lieutenant colonel who let it out almost got busted! Redcliff was plenty secret, and you had to be extra careful about your correspondence or the censors would get busy with their snippers.

Naturally, a good many of my letters to Kathryn had been cut to ribbons when I first came to Redcliff. I wrote her pretty regularly. Kathryn had been at Michigan University with me, and when the war came along we'd been just about on the point of deciding to get married. But then I went in the Army, and stayed in when I got a chance at this rocket deal; Kathryn got a job as Senator Richardson's secretary. So the great romance at this time was nothing but a two-thousand-mile correspondence, with her talking about the Washington goings-on and telling me she loved me, and me telling her I loved her.

But this last letter—what had I said that the censor might not like? Nothing about my work, certainly; I'd learned better than that. Must have been some general remark, cut out on general principles. I thought back, and then I remembered. I'd asked her, "Do you think it'd be possible for a military clique to get the United States into war against the wishes of the people and Congress?"

Heck, that was just an academic question and there was no reason to censor it. Yet that must have been the passage in question.

And the only reason the incident started anything was that Bud Harper, my roommate, had predicted the passage wouldn't get through—because, he claimed, the question was far from academic.

It was McGee, the civilian physicist, who had put the idea in Bud's head. Bud and I had been working on plans for the XFE-II, one of Effie's successors, and McGee had consulted with us on the ship. He wasn't a reaction-motor man, nor an electronics man, nor a structural engineer, yet we'd been told that all his suggestions were to be incorporated into the design without question. We incorporated them, all right, but we asked McGee why he was insisting on so many strange features. Finally he broke down and told us that, and a good deal more.

McGee had been at Los Alamos almost from its start, and, partly because he knew nothing at all about nuclear physics, he had been let in on one of the most secret projects of all: the detailed construction of the A-bomb itself. He didn't know anything about what went on after critical mass was reached in one of those things, but he knew exactly how and by what means the critical mass was reached. And that was why he was at Redcliff. The XFF models were intended to bear payloads of U-235 or equivalent, and McGee

was seeing to it that we built ships that *could* carry atomic warheads.

He told us this, and then went on without stopping for breath, "Yes, fellows, you're building the weapons we've all been looking forward to with fear since Hiroshima and before. If you do a good job you might succeed in wiping out civilization."

"If we do a good job," I said, "we'll have weapons so powerful nobody'd dare to start a war. Civilization will be more proof against wiping-out than before."

He looked at me with a pained expression, as if he'd just discovered he was talking to a Mongolian idiot. "Look, Weiss," he said patiently, "these RRA's—radar-rocket-atomic bombs—will be so powerful that *you* wouldn't dare to start a war. Sure. But don't credit everyone with as much good sense. They haven't got it, otherwise why do you think the Army's making these XFF's?"

I started to answer, but Bud did it for me. "Military research goes on even in peacetime. Always has."

"What 'always has' been true," said McGee, "may not be true any more. Forty years ago governments could meet in The Hague and discuss peace at the same time they were conducting a full-dress armaments race. They could get by with it. They could fool all of the people some of the time—specifically, for the length of time it took for war to break out. Maybe they even fooled themselves, saying their growing armies and navies were for defensive purposes.

"That's past history now, because once those XFF's get to the production stage there won't be any such thing as defensive warfare, just offense and counter-offense. No nation puts weapons like *these* into actual production unless it expects to use them. Offensively."

"It's just the Army," I said. "The Army goes ahead and modernizes whether there's any reason to or not."

"Sure," McGee answered calmly, "the Army always plans for war before the public does. What I said still goes: any nation that builds RRA's, or even simple atom bombs, is putting a chip on its shoulder. When we make a workable XFF we'll just be helping to make Uncle Sam's chip larger and more unmistakable to the rest of the world, and thereby to make war closer and more inevitable.

"Granted what you say, that it may be 'just the Army.' Granted that the old-school Army officers understandably found it impossible even after Hiroshima to throw over the habit of repeatedly preparing for 'the next war.' The important thing is, not whether it's being done by the Army or the diplomats, not whether it's being done consciously or unconsciously, but that it's being done at all. We *are* preparing for the next war. We're precipitating it! Building

fires that must be met with fire.

"This 'just the Army' you speak of is the group least likely to understand your 'not daring' to start another war, I might remind you."

Bud put in, "It's Congress that declares war."

"Try and get a congressman to understand what the atom-bomb means. Oppenheimer, Urey, Hogness—all those boys have tried. Some success, not much. Congress is still in the habit of wanting our Army to have bigger and better weapons than anybody else. There's another habit of thought Hiroshima didn't change."

He made the prospect sound pretty bleak. I didn't really take it seriously then, because McGee was personally such a good-humored guy that you just naturally didn't take him seriously. He was a fellow, about forty I guess, and you laughed at pretty near everything he said, in ordinary conversation.

But he wasn't fooling now, and I remembered what he said. Bud did too, with additions. McGee had said the military could inadvertently cause a war due to Congress' lack of understanding; Bud supplied the equally uncomfortable thought that the military could start a war while deliberately keeping Congress in the dark about their activities. "I'll bet the Military Affairs Committee doesn't know what McGee told us about XFF," he'd say.

I didn't take much stock in it. Bud being pretty dissatisfied with the unpleasantness of life at Redcliff, I figured he was just sounding off. But the whole thing started me thinking, and led me incidentally to ask Kathryn that—entirely academic—question.

And the question had not been allowed to reach her. I knew LeBlanc, and he always took to the colonel all items that might be censorable from a public relations angle; so it had been the colonel who had cut up my letter. Well? Did it mean anything or didn't it?

I was sitting there in our tiny shack just outside of the restricted area, thinking it over, when Bud Harper burst in.

"What you say, Bud, about ready for chow?" I suggested calmly. Telling him about Kathryn's letter could wait.

But Bud had something that wouldn't wait. "Listen, Cole"—that's my name, Coleman Weiss—"I was up to see Jerry just before 4:30, to ask him how about some tennis tomorrow."

"So what?" Jerry was a first looey up in Communications, and tennis was a standard Saturday afternoon occupation in this season, so there was nothing remarkable about Bud's announcement so far.

"Well, he hadn't been relieved yet, and I wandered in to keep him company. He was at the teletype, and the tech sergeant who was supposed to be monitoring the thing was reading a comic book. Jerry was typing like mad on some coded message to the Service Command.

Suddenly he stopped, rattled off a string of xx's, and got off the wires.

"I asked him what the trouble was. 'Oh,' says Jerry, 'I put that in a special code that those guys don't use. When they decipher it they'll think some joker at this end garbled it. I'll have to paraphrase the message and code it right, and then I'll be with you,' and he goes into the code room."

Bud stopped impressively, but I was slow on the uptake. "Well?" I said. "They've been coding a good many of our dispatches right along, haven't they?" Then I did a double-take and read the copy back—pardon the tangled metaphors.

When you looked at it right, it *was* pretty queer. A code the Service Command didn't use was not too extraordinary when you considered the nature of the camp we were at. But if the Service Command would decode the message and think it was garbled, that meant they didn't know the special code existed. Then there was Jerry's having to paraphrase the dispatch before he re-sent it. Unless it was just force of habit on his part, that meant the Service Command—Colonel Jennings' immediate superiors—were to be kept from cracking the special code, perhaps even from knowing there was such a thing. That's the principle of paraphrasing: you don't want to risk the other guy's getting the message both in a code he may know and in one he doesn't, so if you must send the same thing both ways you change the wording.

Apparently the chain of command in which the colonel was involved was not all that chains of command should be.

Bud nodded. "You can call me a crackpot all you want, but this looks like it fits in." It did, too. It fitted in pretty nicely with his idea of an Army war conspiracy. He'd have to change it to a single conspiring clique instead of saying the Army's top leaders were in on the thing; but that was more plausible anyhow. Made it sound less like Central America.

Bud was more stuck on his story than ever, now. I even debated whether or not I should add more fuel to the fire by telling him about Kathryn's letter. Finally I did, and it added fuel all right.

I couldn't help grinning at his expression. "I suppose now old Harper'll be snooping around after a plain language copy of one of those special-code dispatches."

"As a matter of fact, Cole, I was all set to do that this afternoon. A little while after Jerry went into the code room I sort of casually sauntered in after him."

"*Whew!* If you've always had *that* much disregard for regs, it's a wonder you ever got out of OCS." Of course I knew it wasn't disregard for regs, it was faith in this theory of his. I began to see where Bud might be getting himself in real trouble if he didn't watch his step. Or give

up saving the world singlehanded, one or the other.

"I went in, anyway. Jerry finished what he was doing and looked around, surprised to see me there. I acted innocent. He didn't say anything, but gathered up what was in the 'Secret and Confidential Wastebasket,' took his dispatch in the other hand, and started toward the door, where I was. Just as he was about to toss the secret waste in the burn bag, he shifted all his papers into his left hand and saluted hurriedly. So I turn around, and the colonel has come in behind me."

"When's your GCM?"

"No general court this time, but I'd better keep my nose clean from here on in."

It was a relief to hear him say that, but I wasn't relieved for long. He turned on me and wanted me to carry on his sleuthing. "Do some hanging around Communications yourself. You know, Jerry, you can find excuses to drop over there. Use the same excuse I did: ask him for a tennis date."

"Shucks, and I wanted to go flying this week end," I drawled. I had a little plane of my own out at the airport the other side of town which I used to fly around the foothills, sometimes down to Colorado Springs and back.

"That's a joke, son. Invite Jerry to go up with you. What the heck."

"Look, Bud, I'm just as eager to keep my nose clean as you are. In the second place, I've got a good suspicion that this conspiracy tale of yours is strictly from E. Phillips Oppenheim. And besides that—what would you propose doing if your tale happened to be confirmed?"

"Good question," said Bud.

"Yeah, and a pretty tough one, isn't it? Just suppose Colonel Jennings and some of his Manhattan Project buddies actually are fouling up. Suppose they do plan to use their RRA's to start a war on their own. What can we—"

"O.K.," said a voice outside, "I heard what you said. And I'm coming in!"

Bud and I looked at each other in dismay. Then the door opened and in walked McGee.

For an instant I had a crazy notion that he was an Intelligence man, an *agent provocateur*. That didn't make sense, of course, and anyhow McGee was grinning. He must have just dropped by our shack on his way to the mess hall.

"Funny man," I said.

"I didn't do that just for a laugh," he explained apologetically. "I wanted to put the fear of God and the Army into you. Such remarks as you've been making are guaranteed to cause unhappiness if overheard by the wrong parties, and you'd do well to keep it in mind. Might I suggest the radio be turned on?"

While I was trying to tune in something besides double-talk pop songs, Bud asked him, "How long you been listening?"

"Not long, but long enough."

I said, "And what do you think?"

McGee answered, very seriously, "I think our friend Harper may have something there." I looked up quickly: McGee's opinions naturally carried more weight with me than Bud's. As for what to do about it—that is a stickler. If you could get evidence on the colonel, or whoever it is—which of course you can't—you might tattle to the top brass. If the government knew what an atomic bomb was—which of course it doesn't—it might be even more effective to give the dope to the Washington boys. But you're licked before you start. As I say, Hiroshima didn't even make a dent in the Congressional consciousness, and it made the wrong kind of dent in the military consciousness. The most you could do by accusing Jennings would be to get him in trouble; the basic problem would remain."

"Always the pessimist," I murmured.

The discussion didn't go much further; I wanted to get to the mess hall before it closed. After supper I calmly sat down and began to write Kathryn.

After I'd finished half a page I sat up and cursed myself for an absent-minded fool. I crumpled the paper to toss it in the wastebasket, then thought better of it and burned it in the ashtray.

It was natural enough I should start spouting Bud's story to her. Her letters always had a lot of political dope and a lot of hero-worship of her boss, Senator Richardson, to all of which I never had much answer to make except a gentle debunking of Richardson, a milder version of McGee's attacks on legislators in general. Her replies would make Richardson out to be the alert and altruistic intellectual giant one wishes all senators were.

The altercation was getting a little bit stale, and what was more natural than that I, searching for something to say and in a rather abstracted state of mind, should hit on Harper's spy-thriller fantasy?

Yes, I thought, *what could be more natural. Pass the thing on to Kathryn, and dollars to doughnuts the senator gets wind of it. It might turn the trick. What was it McGee had said? It might make that "dent in the Congressional consciousness."*

And *was* it all a spy-thriller fantasy?

I told Kathryn I loved her, addressed and sealed the envelope, and read a detective novel until time to turn in.

Saturday we knocked off work at noon. I quit early, rolled up my drawings and put them in the safe, picked up a *Redcliff Herald,* and went over to Communications to catch Jerry before he got off. I didn't admit even to myself that I was going on Bud's suggestion. It wasn't too tough an idea, asking Jerry to fly down to Colorado Springs with me: it was a beautiful day, the weather man had no baleful warnings, and Colorado

Springs was always better than the town of Redcliff in proportion as it was farther away from the camp.

If wasn't at all on account of Bud that I was going up to see Jerry. Naturally, though, I wasn't going to keep my eyes closed while I was in the teletype room—or the code room.

Pure chance. Nobody was around Communications. Someone was going to be reported for that, but I wasn't kicking about my luck. I wasn't stretching it either. "Jerry," I called. No answer.

The code room would surely be locked. Keeping my act good in case anyone should walk in, I tried the door. It opened.

Sitting down just inside the door and making like I was waiting for the duty comm officer to show up, I took my bearings. I'd never been in here before, but it wasn't hard to recognize the coding machines. The desk with the fluorescent light suspended above it. The basket for secret and confidential waste. The papers lying on the desk beside the basket.

Jerry had really been careless. A trap? If so, who set it?

I crossed to the desk. My hands were in my pockets, negligent-like, but I didn't waste any time. A few yards from the desk I stopped, pulled out my cigarettes and lighter, and began fumbling the job of giving myself a light. But all the time I was really staring at those papers. After I read the first sentences I had to keep reading. Never before had I taken so long to light a cigarette.

I felt myself get cold and tingling all over. I hadn't believed Bud before! But this outdid Bud. In spite of its guarded language and obscure references, it was one hundred percent more explicit than he'd been. Even named the foreign power against which war was planned. Better, the colonel's signature should be on it somewhere, or at least Jerry's. This was evidence!

When I'd finished the top page I suddenly got my butt lit, turned in the other direction, and stood there puffing, hands in my pockets, still keeping up the act.

A lot of things went through my mind. It didn't take long, though; the few weeks I'd spent at the front before V-E Day had given me a habit of acting fast when I acted. About a quarter of an inch of my cigarette was gone when I strode over to the desk, scooped up the papers, tucked them inside the newspaper I still had under my arm. I got out of there fast. Nobody'd seen me.

Getting to the airport was the next thing. I could have taken the regular bus that ran into town at 1205, but suppose someone on the bus should want to read Alley Oop and should ask to borrow my paper? A better idea occurred to me, and I bummed a ride to town with the garbage truck. It left before the bus, so it wouldn't look funny for me to be taking it.

The sentry at the gate to the

restricted area saw me, saluted. I waved acknowledgment with the newspaper, which was now clutched in my right hand. I don't believe I made it very casual.

Once in town, I headed for the bank to get some money. "How much?" I asked myself as I joined the line in front of a teller's window. Not the whole account. As much as possible without raising any eyebrows, and in bills of twenty dollars or smaller. I'm afraid I was rather nervous by the time I reached the teller, my withdrawal slip made out. He made some comment which I don't remember; I doubt if I even heard it. I shrugged, took my money, and left.

As I stood by the side of the highway trying to bum a ride to the airport, with the hot sun beating down on me, all feeling for the high-adventure aspect of the thing deserted me completely. It was,

for a while, just like the time I'd taken a jaunt from OCS beyond the prescribed fifty-mile limit. Then, I'd had to gain a week end with Kathryn, and not much to lose if I was caught. Now I had everything to lose and still more to gain. But it felt the same. I was breaking regulations and doing my best to get away with it.

When I was in the air and headed for Colorado Springs, I allowed myself—finally—a little time for what you might call reconnaissance. It wasn't too late to give the project up. If I cruised around a while and then turned back, I'd probably get a chance, soon enough, to return the stolen dispatch to some unlikely place in the code room, in which case there'd be no skin off my arm and very little or none off Jerry's. My decision was still unforced.

Before I made it, I'd better take a closer look at what I'd taken. Adjusting the trim so the plane would fly with a minimum of attention, I slipped the dispatch out from the camouflaging *Redcliff Herald* and read it through at my leisure. Sure enough, a discussion of policy, along the lines of the section I'd read this morning. Sure enough, the colonel's signature, illegible to one not familiar with Jennings' scrawl, but, to me, unmistakable.

I remembered what McGee had said: "The wiping out of civilization—" I remembered, also, what Bud had said—now everything was confirmed, and my decision made. I'd head for Washington, traveling by plane as far as possible and after that traveling on guts. It should be possible to get the evidence to Kathryn before I was caught, and for her to pass it on. From there on in it'd be up to Senator Richardson. The almost unknown quantity. Perhaps the weak link in the whole audacious plan.

The decision was made. Crumple the *Herald* into a ball and chuck it out. Write a note to Kathryn—don't include her name—and fasten it to the dispatch in case it has to be handed over in a hurry with no time for explanations. Then fold it, put it in your inside breast pocket, and devote full attention to your piloting.

There isn't much to tell about the plane ride. The flying was almost automatic, and time went faster than you'd think. I stopped a couple of times to rest, eat, and gas up, telling the fellows at each airport that I'd come from Salt Lake City, yes, I'd had a pretty hard pull over the Rockies, I was heading for New York, figuring on making about eight hundred miles a day if the weather held good. Actually I made over a thousand.

At a little municipal airport in southern Indiana I paid for my gas, strolled into the office and picked up a Louisville paper from a chair. It was Sunday afternoon, and time to begin looking at every newspaper I could find. Not to look for baseball scores or book reviews, either, but for my name. I'd only been gone a day, I wasn't

even over leave yet, and there was no reason for the authorities to have missed me unless they'd connected me with the loss of the dispatch. If they had—look out!

Apparently they had. The item was small, obviously cut from the Army's release, and probably wouldn't have been printed were this not a king-size Sunday edition. But it had the dope.

You had to admit the Army could work fast when it had a mind. There was my name—"First lieutenant Coleman Weiss, deserter," from now on—a description of my plane, the statement that I was believed to be traveling east, and enough gingerbread to make the story newsworthy. Declared a deserter in less than a day! Either I'd been seen entering or leaving the comm office, or Colonel Jennings was playing long shots in his attempt to keep that dispatch out of circulation.

It was quite a shock. I'd had pretty good hopes of reaching the east coast by plane, arriving some time Monday. I'd been banking on my not being immediately connected with the theft, and on a possible reluctance on the colonel's part to hunt me by standard methods, for fear my cargo might fall into the hands of the General Staff. Both had fallen through.

Several things were clear. First, no one here had seen the telltale news item. Second, that might not be the case the next place I landed. Third, the plane, in spite of its speed, was dangerously slower than telegraph wires, and had ceased to be exactly a desirable means of transportation.

I didn't land at Cincinnati, but I didn't keep on to eastward either. I circled, put what seemed a reasonable distance between the city and me, and simulated a forced landing, some distance from any visible dwellings.

The landing went O.K., so I deliberately saw to it that it didn't go O.K. Before the ship had lost too much speed, I gritted my teeth and forced it over on its nose. A few sharp shocks—then I got out of it, fast. In spite of the fair quantity of gas remaining in its tanks, it didn't burn. So I burned it.

That wasn't so smart; the flames might have attracted people too soon. I had some idea of making the plane harder to identify as mine. The loss of the ship meant nothing to me. I was in this up to my neck, with high enough stakes that twenty-five hundred dollars more or less was insignificant; and the ship's sentiment value was strictly a negative quantity at this point.

There was a panicked moment when I thought I'd left the all-important dispatch in the burning plane. This was quickly proven false, and I fingered with vast relief the thin sheaf of papers that could easily bring me a long prison term.

The night was far gone before I hit Cincinnati, and I cursed my foolishness in having landed so far

from the city. Distances are deceptive from the air, and very long when you're on foot! The long wait in the railroad station which followed didn't help my nerves any either. The station was big, and seemed bigger. There were a lot of people, and there seemed to be more, all looking at me. I dozed sometimes, not enough to get any rest but just enough to have bizarre, unpleasant dreams.

On the train it was better. I awoke feeling fine, in spite of having missed breakfast. There was a fresh pack of cigarettes in the overnight bag I'd bought—for appearance—in Cincinnati, and I relaxed more completely than I had since I left. It was easy to relax—there was nothing left to lose. The almost carefree life at Redcliff was gone. I'd given that up two days before, the minute I crumpled up that *Herald* and tossed it out the window of the plane. With that clear in my mind, my mission once more seemed better than a mere negative flight from justice. It was a positive battle *for* justice.

My state of mind was a lot better when, bag in my hand and papers in my pocket, I left the train at Washington. I was fully prepared mentally for the possibility that I might be awaited at Union Station. And I was.

Whether he was an Intelligence man or a G-man I don't know, but he saw me as I left the concourse. I had one of those flashes of intuition that tell you you're being watched; I turned and met his eyes across the length of the waiting room. He wore a blue short-sleeved shirt and no hat. We both looked away again, neither of us giving any sign. I turned right toward the taxi stand, and gave another look back just as I left the station. It was easy to spot the man in the blue shirt; he was right where I'd seen him before. My suspicions had been correct. He was talking to another man, who wore a visible badge on his lapel, and pointing at me. Our eyes met again.

As soon as I was out of their sight I ran headlong *away* from the taxi stand and caught a D-2 bus that was just pulling out. That saved me. To get a cab would have meant a long search for one that was bound out Connecticut Avenue; the District was still short on cabs and drivers still liked to get a full load. Besides, the G-men's search would now be diverted. They'd naturally assume that I'd at least tried to get a cab.

Still, the bus was slow. It was rush hour, and there were lengthy stops for passengers at the most implausible places.

I'd been recognized. How long would it take before the District police had a description of me?

Downtown, I left the overnight bag under the seat and changed to a streetcar which I thought went out Wisconsin Avenue. It wasn't the car I wanted, but it was headed northwest and there were no free cabs around. At Pennsylvania and

Twentieth, still having failed to spot a taxi, I got off. After walking some way up Twentieth at no mean speed I was overtaken by a Connecticut Avenue bus, which I boarded with relief. Now if everything went well—

Everything didn't. The bus was a limited and went only as far as Albemarle, leaving me several blocks to walk. Walk I did. Every policeman in Washington might be looking for me by now, but if I were just another Army officer strolling down Connecticut I'd hardly be an object of suspicion. I steeled myself and kept up the act even when a squad car passed me. I got an impression one of the cops was turning to scrutinize my face. Still I walked on. No use letting them flush me that easily.

Two blocks down the avenue the squad car started up its siren, made a U-turn, and headed my way.

I was at a cross street, and I turned into it on the double. "The masquerade is over, Weiss old boy," I told myself. There was a driveway running parallel to Connecticut, behind a row of apartment buildings. I cut down it and got out of sight behind an ell as the squad car screamed down the side street I'd just left. Close, but no cigar.

Kathryn lived on the next block. That meant one more street and a series of back yards still to cross. I looked both ways—plenty carefully, believe me—before I crossed that street.

Kathryn's place was in sight. I prayed she was still in the same first-floor room I remembered. I could hear the siren again, in back of me. Two sirens. It was a matter of time now. How much time? In my favor was the fact that the police weren't in a hurry and didn't know I was.

I grabbed the sill of what I thought was Kathryn's window and chinned myself on it. There she was! Just home from work, must have taken the next bus ahead of me. I butted the pane to attract her attention. She turned, recognized me, and stood stock-still with amazement. I tried to motion to her to open the window, but my hands were occupied and the gyrations of my head must have made me look completely mad. It was several long seconds before she was supporting me by one hand while I fished in my pocket with the other. (The sirens had stopped outside. The police would be searching now, on foot. Yet I dared not come into her room—)

She started to speak. "No time," I said. "Here, take this. Give it to Richardson, he'll know what to do. But read it yourself first. Don't get caught with it." Heck, all that was in the note I'd written! In my overwhelming haste I was wasting time myself. I cut it short. "It's all explained in that note."

She took the papers, winked, and slammed the window down on my knuckles, hard! I understood: she was taking no chances. Someone had probably seen me there. Right

now she was no doubt calling the police to report that a lieutenant had tried to break into her room. What a girl!

I got as far away from there as I could before I ducked into the basement where they finally found me.

This is being written in a guardhouse cell, where I'm awaiting trial by general court-martial. I'd expected a general all along, of course. When they officially notified me of my right to have counsel, I played a long shot and named Senator Richardson. The local brass must really have been surprised when he agreed to take the case.

He's been in to see me a couple of times, and I've got the word from him on several things. I'm more or less of a political prisoner now, since Jennings' story came out. If Jennings is cleared, I'll get a prison term, even if Richardson gets me out of the desertion and treason charges. If Jennings isn't cleared, I'll be let off easy with a "discharge for incompetence" essentially, a Dishonorable Discharge without the stigma attached to an ordinary DD.

The senator says he can't stop the communications officer's court-martial, but can get a presidential pardon after sentence is passed. This news was almost as welcome to me as the good outlook for my case. I'd hate to have got Jerry into trouble.

The most welcome of all was what Richardson told me about the Jennings' plot. He's really been working on that, putting a bee in the ear of everybody he can find with any jurisdiction. Best of all, he has hopes that the importance of the case may be recognized—that it may lead to discussion of the danger of an atomic armaments race—that it may open eyes to the peril inherent in the very existence of atomic weapons. He's doing all he can in that direction, too. Some of his words sounded startlingly like McGee.

Sounded, perhaps, like the prevailing Congressional attitude three months hence.

Once Richardson brought Kathryn along and left us—relatively—alone for a while. We didn't make much small talk; I didn't feel particularly clever. My proposal wasn't at all clever. It was a heck of a way to propose to a girl, anyway: through cell bars.

Kathryn's answer wasn't qualified at all. Not depending on how my trial came out, or anything. Just plain yes.

So now I'm sitting here waiting, writing this to pass the time. Wondering about my trial, and more important about what is going on in the capital. Will Richardson fail, or will the arms race be stopped? Ten years from now will the cities' crowded millions be dissolving in rapid-fire bursts of flaming hell? Or will there be a peaceful world—with me married to Kathryn and working on the first Moon rocket?

Or the thousandth?

THE END.

BRASS TACKS

Atomic rockets are more than a sixty-four dollar question. We need a lot more answers.

Dear Mr. Campbell:

Congratulations on your April issue. Brass Tacks was gratifyingly large. Also appreciated was "Spaceship Takeoff" and "Unapproachable." The stories were excellent, good and just fair, respectively. Top honors of course, go to "Pattern for Conquest," by George O. Smith. His invasion of the solar system was a disappointment to me, however. What science-fiction fan could ever forget the solarion invasion a la Smith by the Boskonians. That simple phase of the "Patrol" series was a classic in itself. At any rate, I hope those malcontents who maintain that the "Buck Rogers" type of story is on the way out are proven wrong. There's nothing the matter with the psychological approach and I do think you put out a good magazine, but who can recall the golden year of '37 without just a touch of nostalgia?

Now for the cover. Fair. One of those gadgets looks to me suspiciously like a P.P.I. scope. Surely, electronics has taken greater strides than that! And the projector is a dead takeoff for some type of German radar—with muscles on something.

There has been considerable talk of atomic energy being the cure-all and panacea of all troubles concerning fuel in rockets. Now for the sixty-four dollar question: Just how does one go about applying atomic energy to a rocket? Heat is fine in a heater, but it isn't going to budge a spaceship one inch unless, of course, this heat is used to vaporize some suitable material for expulsion from the stern. All of which is too much like the old-fashioned horse and buggy type of bifuel rocket to really be considered

an advancement at all.—Herbert Gould, Gulfport, Mississippi.

One bowl we don't want here.

Dear J. W.:

Recently returned to the States and Astounding. I was happy to observe new features in the old ensemble, at least new to me—the woodcuts by Swenson are very good, and the cartoons by Orban weren't too bad; however, Kildale's black-line work stinks—it even borders on some of the horrors Jack Binder foisted on you in '38 and '39. Ah, for the days of Schneeman and Isip!

In the far Pacific with the Marine Corps I found one Astounding in a ship's head en route to Hawaii from Iwo Jima, picked up a couple more from buddies in Japan, read an article in *The New Yorker* about your views on the atomic power problem, and was glad to find that even the bluntly satirical "About Town" staff are giving science-fiction the place in the era it deserves.

The desolation at Nagasaki is as great as one would expect—Mitsubishi factories in a tumbled-domino row along the river, four miles of broken tile and glass and pottery, as the speedometer of a jeep clocked it, from the blasted hills on the east side of the bombed-out area to the stark red-brick ruins of the hospital on the northwestern periphery. In the exact center of the mess the Marine bulldozers have excavated a football field and we enjoyed the Atomic Bowl there New Year's Day with geisha cheer-leaders on the sidelines!

I talked to several surviving eyewitnesses of the blast. The old English prof at Kuwassie College where our regiment bunked in during the occupation said he was in the north wing when it happened. The all-clear had just blown and then came the blast. He never heard a single sound. There was merely one blinding all-encompassing flash, the great building billowed and tossed beneath his feet. Next thing he knew, he was on the floor with falling section of roof crashing about his ears. He got up to see a colossal black cloud rising over western Nagasaki. The smoke and dust swept over the whole city. Two days later, he said, they were able to enter wrecked area and try to pull out survivors.

The center of impact was an old Jap athletic field between the Mitsubishi factories and some more industrial buildings to the north, but the center of radioactivity turned up several miles back in the hills. We assumed that all this activity—about half as much as you'd get from the hands of your watch by the time we arrived in October—followed the column of debris and dust, blowing NE across the hills and finally came to rest there near the city reservoir.

Humorous results of the explosion were the fact that so many Nips lost their hair. When we questioned them they always insisted their hair was *blown* right off by the concussion! And the mangy

bob-tailed cats of the city are beginning to turn a premature frosty gray!—R. S. Patrick.

This man KNOWS he has a personal interest. A lot of the rest of us do too—only we don't know it yet.

Dear Mr. Campbell:

Your editorial, "Secrecy and Death," on the potentialities of radioactive by-products of uranium piles in the treatment of cancer, and the shortsighted, hoggish and near-hysterical attitude of some Big Brass in withholding these products from medical research, hits very close to home with me. The connection between artificially radio-activated carbon and national defense is extremely remote if indeed it exists at all.

I am thirty-two years old, and thus should have a reasonable expectation of a number of active years ahead of me. But I wonder —quite aside from possibilities of A-bombs and War III.

Five years ago I noticed a peculiar growth on one shoulder. I had sense enough not to keep waiting and fiddling around—I'd be dead now if I had—but promptly took the matter to a doctor who is both experienced and conscientious.

The growth turned out to be squamous cell carcinoma, a strongly malignant type of skin cancer. But it was in an early stage and surgery and radiation cleared it up in a hurry.

I was warned of the possibility of recurrence, particularly as my paternal grandmother's death from cancer indicates an hereditary susceptibility. Two years ago I noticed another spot that *might have been,* or become, cancerous. We didn't let it develop to the point where we could be sure, but blasted it at once with a couple of doses of radiation.

So today I am quite normal and healthy. But if my case runs according to normal expectations, there is a good chance that in two or five or ten or twenty years there will be a recurrence which—barring progress of medical science in the meanwhile—may prove inoperable.

If that happens, I have no intention of resigning myself to suffering increasing disability, doping myself to mitigate the pain and awaiting death. If at that time, the Army is still following its present criminal policy of withholding these potent new research tools from medical science because of a panicky obsession with "national security" and "hush-hush-ism," I intend to make one final gesture which will at least put the problem on the front pages for a couple of days.

I have neither the guts nor the desire to do anything at present, but if I were dying anyway I would have nothing to lose and others might gain thereby. Let us hope and pray that it does not require the drastic step I have in mind to snap the Brasses out of their rut of illogic and bow-and-arrow thinking!—Joe Spivins.

But mathematics—like the rules of chess or any other game—has no real relation to the actual universe. For instance, arithmetic finds the ratio of diameter to circumference inexpressible. But the ratio is real; it exists.

Mr. Campbell:

I wish to take exception to Mr. Davis' statements on the subject of pure mathematics. He assumes that you assign arbitrary properties to the various integers and that a pure mathematician could very well assign other properties to the integers with interesting results. I cannot see it that way at all. My opinion is that the properties are inherent and merely have arbitrary symbols to represent them. In other words, one is always one no matter what symbol stands for it and assigning arbitrary names and symbols to the integers merely complicates matters and still gives the same answer that has to be translated back into ordinary arithmetic.

Let us assume for the purpose of simplicity that I fix up a series of symbols and set values for them. Then I work a problem and get, say, gul gul gul dofob for the answer while somebody else gets three hundred thirty-three miles. It is obvious that we are dealing with the same thing no matter what we call it. Furthermore I have to return it to actual mathematics in order that others can understand it. So I have gained nothing.

To get back to the original two plus two equals four you cannot change that at all because it is simply an arbitrary symbol for a definite fact. No matter what symbols you use or what you call them you cannot change the relationship between those quantities. It is fixed and unalterable by any act of man.

It is the same way with so-called pure mathematics. You can juggle any symbols around any way you want to but they must represent actual quantities or they are meaningless. Once you have them stand for something it is out of your power as it then must bear the same relationship in the formula as the various factors do in actuality. It is possible to write an equation which has to do with variables such as Ohm's Law but again those variables bear a certain unalterable relationship to each other.

When you get to dealing with so-called pure math the same is still true. It is possible to write all kinds of peculiar equations but they are meaningless unless the symbols stand for some definite quantity or condition. Then the formula has to follow the actual conditions. There is no getting around that fact so the talk of pure mathematics is simply so much hokum. There never was and never will be any such thing. I doubt if you will print this letter as you are so set on the big blah yourself but I think it only fair that you do.

There are several things I have to holler about in Astounding. One is that you never print anything unfavorable to the magazine. Second, you have gone overboard on mutants, while the third is that your

authors seem to feel that everybody is a technical student and their stories are written so that you have to be a technical student to understand them. Don't forget that there are many more readers who are not scientists and their money is just as good in the cash register.—Edwin Sigler, 1328 N. Market, Wichita 5, Kansas.

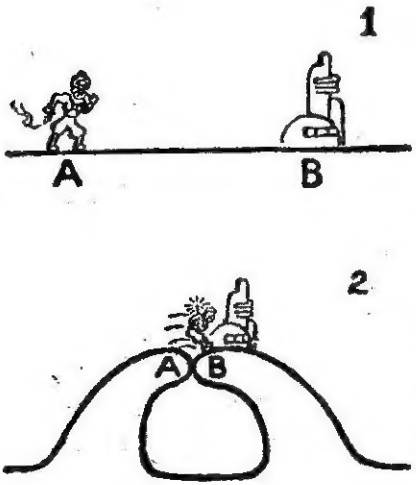
But I do wish he'd included a circuit diagram of that Harrington gadget as well as Fig. 1 and 2!

Dear Mr. Campbell:

This is in answer to Jack Murrell's letter in the July Astounding. The serious consideration of space warps is mostly a matter of mathematics and mathematical philosophy, subjects on which I am not very well qualified to write, but here goes anyhow.

The easiest way to handle the problem is by analogy. Think of the multi-dimensional space-time continuum as a flat sheet of some elastic material as in Figure 1. Say the villain wants to get from point A, where he has just murdered someone, to point B, which is his hideout on Alpha Centauri. With his Harrington Space-Time Manipulator he warps space so that points A and B coincide. In our rubber sheet analogy it is as if you pinched up two widely separated points on the sheet and held them together. See Figure 2. A

microbe could step from A to B when those two points touch, but, if you let them snap back, he will be two days' hard travel from where he was a second ago. In this application of the space warp the area of coincidence—not a point, as Mr. Murrell thought, but a locus of variable size—is usually considered as a surface of zero thickness. (Yes, I know a geometric surface is *assumed* to have no thickness.) Going "through" the warp is like stepping through a hole in a wall from one room to another.



The time element enters in only when moving from one "side" of the surface to the other. The surface is of zero thickness so it takes zero time. Conversely, most time machines distort the time element—duration—of the continuum rather than the space element—distance—so that by moving through zero distance you move from one date to another in time.

A second common application of the space warp in science fiction considers the area of the warp—or the part of it perceivable by the three-dimensional being—as a closed surface, a hollow sphere. This bubble in the continuum comes drifting along and engulfs the hero and heroine, who find that it had previously engulfed a couple of dinosaurs and a stray Martian. Why they don't just step out the other side of the bubble has never been explained. In this case the surface of the warp is assumed to be a one-way or true geometric surface.

It is quite incorrect to describe sensations of characters passing through a space warp. Since said characters are part of the continuum, like everything else they will be warped symmetrically with their surroundings and so sense nothing. The space warp has nothing to do with sub-space which, in science fiction, is simply a region where inconvenient physical constants like the speed of light need not apply.

Mr. Murrell's original difficulty, however, comes from an error in logic. The space warp does not transport from one point to *all* other points, but from one point to *one other* point. The two points never become the same point. (Semanticists, attention!) It's just that there is no distance between them.—Richard L. Montgomery, 168 Whipple Road, Kittery, Me.

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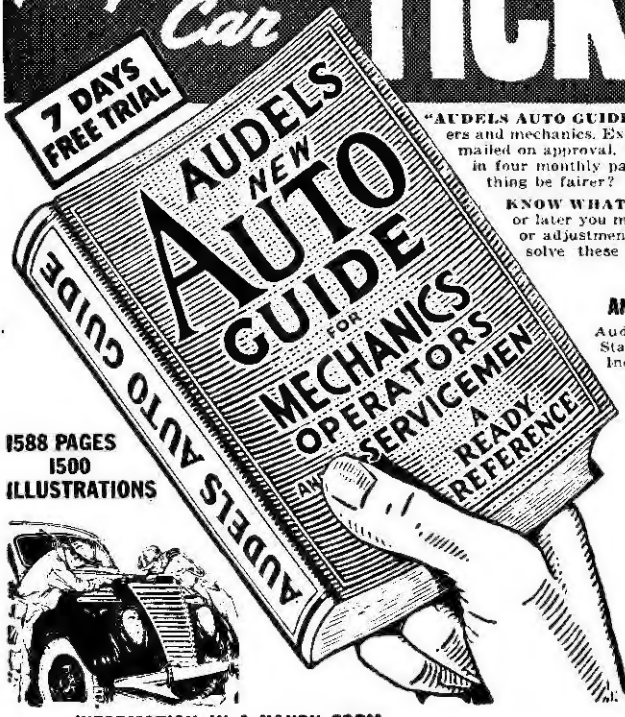

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